IN THE CIRCUIT COURT OF THE SIXTH JUDICIAL CIRCUIT
IN AND FOR PINELLAS COUNTY, FLORIDA
CIRCUIT CIVIL NO. 97-4678-CI-13

ROBERT M. TUNE,

Plaintiff,

v.

PHILIP MORRIS INCORPORATED,
a foreign corporation,

Defendant.

BEFORE: HONORABLE ANTHONY RONDOLINO
Circuit Judge

PLACE: Courtroom D
Judicial Building
545 First Avenue North
St. Petersburg, Florida

DATE: Monday, May 20, 2002

TIME: 9:00

REPORTED BY: Yvonne P. Habis
Court Reporter, Notary Public
State of Florida at Large

JURY TRIAL

VOLUME XVII Pages 1727 - 1833

ROBERT A. DEMPSTER & ASSOCIATES
COURT REPORTERS
P.O. BOX 35
CLEARWATER, FLORIDA 33757-0035
(727)443-0992

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APPEARANCES

HOWARD M. ACOSTA, ESQUIRE
ACOSTA & MANN, P.A.
300 1st Street North
St. Petersburg, Florida 33701
Counsel for Robert M. Tune

KENT G. WHITTEMORE, ESQUIRE
BRUCE H. DENSON, ESQUIRE
WHITTEMORE & DENSON, P.A.
One Beach Drive Southeast
Suite 205 St. Petersburg, Florida 33701
Co-Counsel for Robert M. Tune

MATTHIAS A. LYDON, ESQUIRE
JOSEPH J. ZAKNEON, ESQUIRE
JOHN CHRISTOPHER, ESQUIRE
WINSTON & STRAWN
35 West Wacker Drive
Chicago, Illinois 60601-9703
Counsel for Philip Morris

NANCY J. FAGGIANELLI, ESQUIRE
CARLTON, FIELDS, P.A.
777 South Harbour Island Boulevard
One Harbour Place
Tampa, Florida 33602
Co-Counsel for Philip Morris

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MOTIONS IN LIMINE 1730

WITNESS

PETER J. LIPOWICZ, Ph.D.

Direct Examination by Mr. Lydon 1763
Cross-examination by Mr. Acosta 1804

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PROCEEDINGS CONTINUED

THE COURT: Good morning, everybody.

MR. LYDON: Good morning.

MR. ACOSTA: Good morning.

MR. WHITTEMORE: Your Honor, we have a couple

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Motions in Limine this morning --

THE COURT: All right.

MR. WHITTEMORE: -- to start. My understanding is that Peter Lipowicz is going to be called to testify by the Defendants, and we have been presented with nine demonstrative aids and an article entitled, The Safety Assessment of the Ingredients Added to Tobacco in the Manufacture of Cigarettes, and several CVs of those apparent authors.

Taking this in reverse order, we would object and move in limine to exclude any demonstrative aids, specifically PL9, which recites -- is actually a picture of the cover of this research material, and research material itself on the basis of hearsay and also improper bolstering. I'm not aware of any exception that that would come under.

MR. LYDON: Your Honor, PL9 is an excerpt from an exhibit, which you have before you. Which is TU935.

THE COURT: Is this in evidence?

MR. LYDON: No, that is about to be offered into

evidence and it's from that exhibit. This is the entire set, Your Honor, of demonstrative exhibits. And they have the numbers in the lower right-hand corner.

THE COURT: All right. So before we can make a determination about the demonstrative exhibits, if they are based upon an item in evidence which you are planning on offering, we ought to go over whether the offering will be accepted.

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MR. LYDON: Your Honor, the exhibit that is being offered is TU530, which is a report on ingredients added to tobacco in the manufacture of cigarettes. Beginning in 1985, the --

THE COURT: Now, what would be -- the evidentiary basis for this is hearsay; correct?

MR. LYDON: Well, Your Honor, we are offering it because of the fact it was commissioned by Philip Morris, requested and obtained by Philip Morris as part of its regular course of business, and it does regularly submit -- this is just one such evaluation that's been obtained. This one was 1994. What they do collectively, along with the rest of the industry, is submit all of the ingredients for evaluation on a periodic basis.

THE COURT: So, let me stop you for a minute. I'm calling you on what you said that you are trying to seek

admission of this hearsay item --

MR. LYDON: Right.

THE COURT: -- on the basis of the business records exception; right?

MR. LYDON: Yes, Your Honor.

THE COURT: Why would this not be prepared in anticipation of litigation if it was done in 1994? I couldn't -- I couldn't expect that there was not litigation ongoing in 1994 regarding the hazards of smoking.

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MR. LYDON: Well, Your Honor, that -- the fact that there has been litigation has nothing to do with whether or not they are getting a safety assessment on ingredients. If there were no litigation, they would be doing this on a regular, ongoing basis.

THE COURT: Okay. Where are all the ongoing reports like this, then, that precede any filing of lawsuits?

MR. LYDON: See, this was -- this is not -- you are saying any lawsuits. Well, I don't think we can do that, Your Honor. I mean, there are lawsuits that date back into the '70's.

THE COURT: Well, what it sounds -- it reminds me -- let me give you an example. A Defendant in an automobile accident, instead of calling an expert in

biodynamics, offers some big report by some biodynamic firm out in Texas about all their assessments of the crash data on the 1996 Pinto. This just happened to be a 1996 Pinto in the case that we are involved in. So why should I go out and spend thousands of dollars hiring an expert and doing experiments and all that? I'll just get the report and submit the report. They can't cross-examine the report.

MR. LYDON: Your Honor, the witness who is testifying is a company scientist, whose job, in part, involves submitting these materials and getting the information with respect to the safety of ingredients, added ingredients in cigarettes. I -- I --

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THE COURT: Well, is somebody whose name appears on this report going to testify?

MR. LYDON: No, Your Honor.

THE COURT: So why is it not bolstering then? He is going to come up here and testify as to what his opinion is and he is going to say, well, it's not only my opinion, it's somebody else's opinion, or he's -- perhaps he has considered the information in this report and it's part of his education, training, and experience, then he would just be used as a conduit in order to get this report in. It's like the Surg Tech (phonetic) case.

MR. LYDON: Okay.

THE COURT: All right. So to the extent that I'm not really seeing an evidentiary basis for admissibility yet, the visual aid would, that is, the demonstrative aid would not be appropriate in that it has this Peter Lipowicz Research at the top. Without that, it's fine.

MR. WHITTEMORE: Judge, the only one that we have addressed to this point is PL9, which is the last one.

THE COURT: Okay.

MR. WHITTEMORE: There are other bases for PL1 through 8. PL9 is an excerpt.

THE COURT: Okay. Well, PL9, then, purports to identify particular quotes out of the Exhibit No. 530, which has not been permitted, so I can't really see a

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way any of that would be usable.

MR. LYDON: Okay.

THE COURT: All right. Let's go to the next concern.

MR. WHITTEMORE: Judge, the other documents are somewhat different. Mr. Lipowicz --

MR. LYDON: Lipowicz.

MR. ACOSTA: Lipowicz purports to be an expert. He is an employee of Philip Morris. And what is happening is that there is an attempt to have him

testify about things that are occurring now in terms of continued research by Philip Morris, and there is in PL1 reference to -- actually, excuse me -- in PL2 there are a number of patents, all of which post date Mr. Tune's ceasing of cigarettes. PL3 is the same thing. And on the basis of relevance, we object to any reference to these two documents. I fail to see any relevance at all with what these have to do with this case. And that's the basis for those two.

MR. LYDON: Your Honor, Peter Lipowicz has been employed with Philip Morris since 1988. He is a chemical engineer with specific training. His whole expertise prior to beginning --

THE COURT: I'm going to stop you for a minute. I'm not perceiving the objection to be to his qualifications to testify as an engineer, I'm perceiving the objection to be that he is going to be purportedly offering evidence about matters irrelevant to the

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considerations here; is that right?

MR. WHITTEMORE: That's correct.

MR. LYDON: I don't think that is accurate, Your Honor. I think what he is going to be describing is work that he stepped into that was ongoing and efforts that have continued from the time he was employed to the present time with respect to cigarette

design. And in saying, as he ultimately will, that there is no safer alternative design today, by necessary implication, there was no safer alternative design at any time in the past, he represents someone who speaks to the State of Art of cigarette design and that's the reason for his testimony. The exhibits that are being offered only go to explain his expertise and his qualifications. The first exhibit goes to work that he has done throughout the period of time that he has been at Philip Morris and just what it is that Philip Morris has been doing.

THE COURT: Okay. I don't see anything wrong with PL1. Plaintiff, is there --

MR. WHITTEMORE: I don't have any objection to that during the time period in which Mr. Tune was smoking. I think anything that has been done since 1994 when the Plaintiff indicated he stopped really isn't relevant to this case.

The other issue that we are dealing with is that what they are talking about is a converse of a

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reasonable, safe design. That's a part of Restatement (Third) which has not been adopted in Florida. Restatement (Second) does not include that as a material element of what we have to prove. There is an article in the Florida Bar Journal issued

December 2001, which was The Restatement (Third) of Torts, Products Liability -- The Tension between Product Design and Product Warning. That particular article is the study of the distinction between Restatement (Second), which Florida has adopted, and Restatement (Third), which Florida has not adopted. Restatement (Third) includes, and I'll read this quote on page 12, to prove design defect, the Third Restatement, unlike the Second Restatement, requires a plaintiff to demonstrate the existence of a reasonable alternative product design.

So that's not really an issue in this case unless this trial court is prepared to adopt a rule that has not yet been adopted by any of the appellate courts in Florida. And that's -- that's the problem that we are dealing with is this is a back door way of disproving a negative which we don't have to prove, all reasonable alternatives --

THE COURT: Well, let me pose this to you. Even if it would be a viable method of proof, a Plaintiff doesn't have to accept every avenue to go there. You can reject it and say, I'm not -- I'm not going to try and prove the case by showing that.

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MR. WHITTEMORE: I agree.

THE COURT: Right? So is it your statement that

there is no attempt on your part to make a claim on the basis of those proofs?

MR. WHITTEMORE: No, certainly, after 1994.

THE COURT: Well, I'm not understanding your answer. Is your answer, no, we are not trying to prove that? If the Defense asks for an instruction for the jury not to consider that, then, you know, that's okay because we are not trying to prove that?

MR. ACOSTA: Your Honor, this is a little different. This is about an electric cigarette of the future.

THE COURT: Well, wait a minute. Let me stay on track because I'm trying to see what you all are trying to prove here, and if part of your proof, if you would like the jury to have an opportunity to base a claim on the fact that they could have designed a better cigarette, well, those issues are then relevant. And then the Court has to examine the appropriateness of some testimony about today's better cigarette versus yesterday, that is, when he smoked. So, first, I need to answer the question whether you are offering this up as a method of proof to the jury.

MR. ACOSTA: Well, I guess, in effect, Judge back in the '60's, '70's, '80's, there were design modifications to tobacco made by the cigarette companies

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which, if had not been done, would have made the cigarette safer in our view, but we are talking about a cigarette. What this -- and so, in a sense, yes, we have demonstrated that there were things they shouldn't have done in their design practice. Now you could call those alternative designs I suppose, but that isn't -- we're not -- we didn't try to put on evidence that, oh, they should make a whole new different type of smoking device that is different from a cigarette.

THE COURT: Well, I beg to differ with you. You know, I can't look at the evidence in that restricted a fashion when there has been evidence presented, I believe, by the Plaintiff in this case for the proposition that a cigarette is merely a nicotine delivery system and maybe in order to satisfy the concerns of the public with respect to the need for their nicotine fix, there could be other safer ways to do it. The patch, I guess, would be a pretty good example.

MR. ACOSTA: Yes. But what we are objecting to here is something different. This is a cigarette of the future. I guess it's called the Accord and it's an electrically-heated, battery operated smoking device that doesn't actually -- I don't think it actually burns the tobacco, as I recall.

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THE COURT: Well, what confuses me here is if I was being called upon by the Defense at this point -- suppose this was your witness, and you were offering this witness to prove, hey, look there are other ways they could have made this product in a safer fashion. They knew about that. They ignored it. And they offered the same old thing where you put it in your lungs and get cancer. I'd be looking at the Defense and saying, well, why can't -- this is that alternative design. This is the commercially feasible way to do it. Certainly, they can put it on. And when I think that way, I say, well, if the Plaintiff could have put it on, why can't the Defense put it on?

MR. ACOSTA: Well, I don't know how the Plaintiff could put on something that was just patented, I guess, in 1995 after Mr. Tune stopped smoking, and it's some knew kind of smoking device, and then somehow leapfrog back and say, well, we couldn't have invented this before 1995 because that's the first time we could get the patents on it and so, you know, there wasn't an alternative design like this available. Well, what's the relevance of that? I mean, there are lots of things that are going to be designed in the future that don't exist today that you could go in and say, well, we can't do this and we can't do that and never could because the

technology hasn't evolved yet. So I -- I -- I'm

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struggling with this because I think that it goes beyond what was the relevant time frame and whether or not there were feasible alternatives to the actual cigarettes that were used, not some new product that isn't even the same kind of cigarette at all. That's where I think the leap is occurring here.

THE COURT: Okay. Well, if the Plaintiff would have offered some evidence about some design change, some actual specificity, I guess, with respect to the chemical or engineering designs of this product back when he was a smoker, then, obviously, I think the Defense could put on some evidence to counter that and perhaps even evidence to show, well, the proposed designs that they have referred to actually were invented after Mr. Tune started smoking and we got to tell you why it took so long to come up with that. You know, I understand that argument.

So since that hasn't been presented, Defense, why would it be that we would go into all of these things?

MR. WHITTEMORE: Judge, there is some evidence.

MR. ACOSTA: Well, there is evidence back in the '50's and '60's that they -- but what we contend the design should have been is a little different from what they are suggesting. What we are claiming is that they

should have reduced the nicotine levels to levels that would be non-addictive, or they should have raised the pH of the smoke where it was not inhalable so that the person could inhale the cigarette and maybe make it

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similar to a cigar instead or pipe tobacco smoking. But what they did is instead they enhanced the nicotine features of the cigarette rather than reduce the addictive properties of the cigarette and, then, of course, they failed to remove carcinogenic substances. They can put on evidence and say, well, we were unable to do that or whatever, that's okay, I don't have any objection to that kind of testimony. But where we depart is when they go into the cigarette of the future, which really doesn't even exist today, and say, well, we couldn't have made that back then. There are a lot of things that were made in the future that you couldn't have made 40 years ago or 20 years ago. The technology didn't exist.

So I just -- I'm hearing the Court, but I'm -- I'm thinking that when you see this evidence, it's just not -- going to be not relevant, and that's the reason we are moving in limine, but maybe -- maybe the Court has to hear some of it to see where it's headed, but I -- I -- it's --

THE COURT: Well, let me speak to the Defense for

a minute because I agree with the Defense in terms of any attempts by the Plaintiff to establish this safe product, which allegedly could have been made by the Defendant during the time period that Mr. Tune smoked, would be relevant, but how is it relevant to talk about patents and new future cigarettes and all that which

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occurred after Mr. Tune stopped smoking?

MR. LYDON: Part of our problem, Your Honor, is that in the way the Plaintiff decided to present its case with just dumping documents, and some of which had rough document references to things like nicotine delivery device and other such speculation, what is doable or undoable but not putting on an expert, is that we are not sure what it is that we are trying to confront. And so what we have done is to present -- or want to present to the Court and jury is a witness who is a current design engineer. And to the extent that we are talking patents that are after the time of his -- of Mr. Tune's smoking history, this is no more than offered for the purpose of establishing the credentials of this expert, that's all. We are not suggesting anything more than that, but it does show this man has been involved in cigarette design to the present time. And what we will be offering --

THE COURT: Well, let me stop for a minute there

because certainly some limited testimony regarding the extent to which this gentleman has worked in a particular specialty area would be permissible. So what's the matter with that?

MR. WHITTEMORE: I don't have an objection to his qualifications, but I think in using PL2 and PL3, it goes way beyond that. Looking at the details of six patents and a bunch of pictures and copies of patents really isn't necessary to establish his capability to

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testify to his expertise.

THE COURT: Well, I don't see anything wrong if it's used in that limited fashion and we don't go into all manner of detail about the cigarette of the future or the particulars of these specific devices.

MR. WHITTEMORE: That's what all these are, Your Honor.

THE COURT: Okay.

MR. ACOSTA: They are all patents which deal with the cigarettes of the future that were patented after Mr. Tune stopped smoking.

THE COURT: I think that certainly bears upon his credibility.

MR. LYDON: That's the only --

THE COURT: I will be sustaining -- I can't predict, but the Court will be very receptive to hearing

objections directed to irrelevant explanations of the cigarette of the future.

MR. WHITTEMORE: Thank you. With regard to PL5 and 6, there are comments on these two which, apparently, deal with smoker acceptance, which is really outside the scope of anything we have been presented with in terms of qualifications of this particular witness. I understand that he may talk about the components of cigarettes, the nicotine in milligrams per cigarette, but the title of it is, What Have Smokers Accepted --

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THE COURT: All right.

MR. LYDON: Judge, what this chart depicts and what he will explain is that these reports are sales-weighted averages. These are scientific studies that have been accepted by all the agencies of the government as well as the industry, and they report -- the lines report what has happened to average tar and nicotine per cigarette over the course of time. And so, by necessary implication --

THE COURT: Well, let me stop, though. The graph itself doesn't correlate with what have smokers accepted.

MR. LYDON: Yes, it does, Your Honor. Here is what the point is. These are the sales-weighted

averages and these are the sales-weighted averages for tar and nicotine per cigarette, and so it does correspond with what smokers have accepted because that is what they are smoking as opposed to what's offered out there. For example, and some of his testimony will illustrate this, there are products offered by Philip Morris that would fall altogether below the line here, Marlboros that are offered that fall altogether below the line. But this is -- the point of it is you could put all sorts of cigarettes out on the market, filtered, unfiltered, lights, et cetera, and what it is that people are smoking and what has happened to the tar and nicotine levels in what it is that they are smoking, this is what this reports and that's why it's framed in

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terms of what smokers have accepted. It's what they have bought.

THE COURT: The gentleman, as I understand it, is an engineer and scientist?

MR. LYDON: Yes.

THE COURT: And he can certainly testify about their efforts to reduce the particular components of the product and the designs associated therewith, but this seems more like a marketing map. You know, somebody told him that this is what their studies revealed; right?

MR. LYDON: Well, it goes both ways. This is indeed both a scientific study and it certainly would be used by -- it could be used by marketing people as well because it does report the consumer sales-weighted averages of what's out there in the marketplace. But at the same time, it also reflects what has happened as a result of product changes and designs beginning in the '50's with filtration. What it depicts pretty clearly is that whereas everybody was smoking unfiltered cigarettes, now a majority of people smoke filtered cigarettes. Many have chosen products with other innovations in them. As they choose those products, the tar and nicotine levels come down, and that is the result of the design work that's gone into cigarettes.

THE COURT: I know, but this does not have anything to do with the education, training, and

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experience of the expert. This is information, motivational information. This is like this is why we want you to build a car that goes 75 miles an hour in first gear because all the people in South Florida love to drive their cars this fast. You know, well, we don't know if that's true. The people in the marketing department somehow divined this and told the engineer that so he is going to build a car that can do that and he will tell us all about his capabilities in

engineering and design, but he is not a parrot for the information of the marketing department. If these surveys and studies are somehow coming in, okay, fine. If those are coming in in some other method, maybe someone will be able to testify about them, but I do not perceive this information to be even essential. What does he care? Most scientists, you know, they don't care whether the product is marketable. They are there to design the product. So I'm not -- unless there is another basis for the introduction of this, it's probably not admissible.

MR. LYDON: Well, which part of it is not admissible? I mean, the point is they have produced -- they have made product changes that have resulted in these reductions in tar and nicotine. Okay?

THE COURT: Certainly, that's within his purview. He is in the department that's assigned to make determinations about the levels of, from what I'm led to believe, levels of these substances in cigarettes, but

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what you want him to do is correlate that with sales and what I'm saying is that's not really relevant to the engineering aspect of it. That has to do with the marketing department, why they want him to do this. The marketing -- you know, if there wasn't a problem with this, the guy would be out of a job because the

cigarette company would say, we don't need anybody to study the product. We are doing great. We are selling fine. Why do we need somebody to lower something in the cigarette? That's an extra expense. Do you understand?

MR. LYDON: No, I don't, Your Honor, because in part what they can do, for example, is they can engineer all sorts of design features. One of the things he will talk about is they designed a cigarette, went to great expense, spent money building a plant for a cigarette that had no nicotine in it. It cost $200-some-odd million. It had to close because they didn't sell any.

THE COURT: Okay. But, once again, what I have to do in making an evaluation about the evidentiary matters is determine whether somebody who is on the witness stand is telling me something that's in their personal knowledge, or whether they are just telling us what Johnny Jones told them, you know. Mr. Jones, the marketing manager, told me none of the cigarettes sold. Oh, okay. So why did he tell you that? Because I had to work on a different product. Okay. Why do we need

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to know why he is working on a different product? We don't need to know that. That's not in his area of expertise. His area of expertise is what he is doing in engineering.

MR. LYDON: Part of this comes down to what's feasible as well. It's not just feasible in the scientific sense.

THE COURT: Okay. Wait a minute. You are missing the point. I'm not saying this is not relevant. I'm not saying if you march Mr. Johnny Jones, the president of the marketing department, in here and his area of expertise is the evaluation of all the sales data, and he says, well, you know, we did all these cigarette changes and, guess what, it's not commercially feasible. It didn't sell. The cigarette stinks. You know, nobody likes it. Okay. Well, maybe that's something the marketing person knows. That's the difference that I see.

Mr. Whittemore, do you want to add anything?

MR. WHITTEMORE: I don't have anything to add, Your Honor, on PL5 and 6.

THE COURT: I hope you are understanding what I'm saying. I'm just looking at this witness, looking at what I perceive his area of expertise is, looking to see is this the kind of information he needs to make an engineering decision. No, he doesn't need to.

MR. LYDON: He does have to know what's -- they are not going to have him go out there and work on

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something that doesn't make any sense, either. And so

they are going to be directing him to and he has to remove harmful constituents and try to overall bring down tar and nicotine levels and that's what he does. And part of this graph, if you look at what have smokers accepted, part of this graph does reflect that they have done that work.

THE COURT: Okay. First of all, I'm not saying that what smokers have accepted or not accepted is not relevant. I think it's completely relevant. What I'm focusing on is the fact an engineer is going to come in here and tell us the results of some marketing survey. Well, that -- my perception is the only reason the guy in the lab coat knows anything about the marketing department is somebody from marketing came down and said, you know, you have been wasting your time here. This product is not -- you know, you did a great job, you eliminated all the nicotine, but, guess what, it's not selling. You have to do something different.

MR. LYDON: But the direction also would be, well, look, we want you to design a cigarette that lowers tar and nicotine. And this, in part, this graph reflects in part what the results of his efforts brought about, his and others that preceded him, obviously.

THE COURT: I know, but he knows nothing about that, the results of his efforts. He knows about his

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efforts, he knows what his charge is, and it's perfectly permissible to say my job was to reduce the nicotine in the cigarette and this is what I did. On the front end of his charge is, well, why were you told that? Well, I was -- well, see, now he is going beyond.

MR. LYDON: If his charge is to produce a cigarette that's going to be acceptable to consumers, I don't understand why it isn't, in part, relevant for him --

THE COURT: He can certainly say that. His job is to produce a cigarette that is acceptable to consumers. But then how does he know what's acceptable to consumers?

MR. LYDON: What sells and what doesn't sell.

THE COURT: So how does he does he know that? Did he go out and go door to door and do a survey or something?

MR. LYDON: No, he doesn't. He knows what -- the fact that his company that he is a part of isn't selling these cigarettes, or is selling some of them. Some are sold, some aren't. Obviously, you wouldn't see this reduction if it weren't for the fact that some of the innovations they have made, the principal ones being filtration and expanded tobacco, did result in reductions. Some things didn't work, and I use the

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denicotized cigarette as an example. It didn't sell. But they do go out there and try to design a product with lower tar and nicotine that consumers will accept. That's what his charge is. That's what he is supposed to do.

THE COURT: I have no problem with him telling us what his charge is, but what I have difficulty with is some, in the front end, motivational information to him about the why, or some information after he does his job about the result. I mean, this is just pure, total hearsay. Is there anybody in the company who can't come in here under this theory and testify, well, yes, these cigarettes were not selling, and giving us the details, for God sakes, about how the product did sell and when it sold and when it didn't sell and all that? They have absolutely no idea other than the fact that the folks who really were gathering the information have somehow relayed it to them.

MR. LYDON: That's true, I suppose, in that broad sense. That would be true for everybody in the company. Everyone is always relying in the course of a large business on information that they get from other persons in the regular course of the business. That's the nature of a large business. And he does have knowledge of the fact that these didn't sell. He does

know that they spent a lot of money building a plant and going into production and it didn't work. And he also

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knows, in other instances, things that they did worked very well. They did bring down tar and nicotine.

THE COURT: Well, let's just assume for the moment that an essential element in the case is whether the product is commercially feasible. So I guess you could just bring somebody in from the engineering department who is in charge of finding how much nicotine was in the -- reducing the level of nicotine in the cigarette, and he could say, yup, it's not commercially feasible. Well, how do you know that? How did you know it was going to sell or didn't? Well, because, and now I hear nothing but hearsay from him about everybody else. Somebody told him.

MR. LYDON: No, we tried. We built a plant. We built a plant. We went into full production and it didn't sell. How else is it established, if we are just talking about a denicotized cigarette, which is what we are at the moment, how else is it done? There are hundreds and thousands of people involved in the effort and all of them contribute and his contribution was a major part of it.

THE COURT: Okay. Mr. Whittemore?

MR. ACOSTA: Judge, there is nothing in his

expert's disclosure which indicates, other than expertise in chemical engineering, his duties, which are, "research and smoke composition of cigarette design for Philip Morris Research Center, Richmond, Virginia". His job duties currently include exploring emergent

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technologies with the potential to reduce the harm associated with cigarette smoking. There is nothing to indicate he has any special knowledge, experience, or training in the commercial viability of cigarettes, even if that becomes an issue.

MR. LYDON: They haven't taken his deposition and all I can tell you is that his job as a senior scientist at Philip Morris does involve producing commercial -- commercially acceptable products.

THE COURT: I don't have any problem with him talking about that. What I have is a problem that he is acting as a conduit for detailed marketing information. So I'm going to sustain their objection to that.

MR. WHITTEMORE: Thank you. PL7 we object to on the basis of hearsay and improper bolstering.

MR. LYDON: PL7, Your Honor, what PL7 concerns is the framework within which Philip Morris is currently operating. I should explain it does bear upon -- I don't know about the evidentiary basis, but given what Your Honor has said otherwise, I think I better explain.

THE COURT: It just looks like bolstering right off the bat.

MR. LYDON: Well, it's not bolstering because there isn't anything that's of an opinion nature that's stated here.

THE COURT: Well, what's it for?

MR. LYDON: It's offered to show, and this is why

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I think we need to get at it, not for the bolstering, I think there may be a problem in light of what Your Honor said otherwise. Philip Morris is currently working with the precepts of the Institute of Medicine. Its research and development department operates in accordance with the precepts and the guidelines and the principles that are laid out by the Institute of Medicine. That's the way in which they are operating today. And so to the extent that he has to explain who the Institute of Medicine is, that's what he was going to do.

This is a report that was written by the Institute of Medicine for the FDA. There is no existing regulatory framework for cigarettes in terms of evaluating or grading them, one versus the other, that sort of thing. There is -- and this is the way in which Philip Morris works today. I think -- I think I can go through this rather quickly, given what Your Honor has indicated about what's been argued about 1994, we may

have to revisit this anyway.

THE COURT: I don't have a problem with him indicating the protocols or methods that they use being the accepted methods in the industry or the standards or the same standards as some institute. What I have a problem is it seems as though there is an attempt to use this book out of the blue here. The book gets held up, it's clearing the smoke, and there is quotes out of the book, so.

MR. LYDON: Your Honor, the only -- there are no

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quotes out of the book other than indicating -- here's the thing. There is no industry standard as such that I'm aware of. No regulatory framework that the government has in place. What's being proposed by the Institute of Medicine is such a regulatory framework. What I want to show is that Philip Morris today is working to try to fit into what it thinks is coming, but there is no framework today, and this is the framework that they are trying to work under.

THE COURT: Well, I don't have a problem with him explaining the framework that they are trying to work under or if they are trying to meet someone's standards --

MR. LYDON: That's all this is.

THE COURT: -- but this doesn't really look like

that to me.

MR. LYDON: All it does is identify who they are. It doesn't say -- we are not laying out opinions or other such things there, it's just to identify where it is that Philip Morris is trying to go.

THE COURT: Okay. I'm going to sustain the objection as to the use of the visual aid. He can talk about his methodology and attempts to meet some generalized standards.

MR. WHITTEMORE: Thank you, Your Honor.

PL8, I understand, refers to current activities on the part of Philip Morris, which I don't think have any

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relevance to Mr. Tune's case.

MR. LYDON: Well, denicotized certainly relates. That was done during the period of the time he was smoking.

MR. WHITTEMORE: If it was done before 1994, I can't object to it.

THE COURT: Well, why would it be called a recent development? It's either an old development or it's something that they -- I guess any of these recent developments, if there has been continual work on it and they finally got the guy almost on the moon or whatever it is, you know, talking about the Wright brothers.

MR. LYDON: Your Honor, De-Nic was something that

came out at or around the time that he arrived there. He did some work on it. The rest of this refers to work that's been ongoing in the efforts of reducing the harmful effects of cigarette smoking during the course of time to the present so it's all of the 1990's.

THE COURT: Well, to the extent that we are going to be learning about brand new things, those would be irrelevant, only becoming relevant if there is a demonstration of a continuum of the efforts of the Defendants or others in the field to develop a product, and how, you know, how difficult it has been. So I'll give you a little bit of latitude there, but if this is just something brand new --

MR. LYDON: No.

THE COURT: An electrically-heated cigarette, is

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this something that --

MR. LYDON: They have been working on since the '80's.

THE COURT: It sounds like something out of these old Popular Science Magazines where the guy's got a battery on his back.

MR. LYDON: Well, you know, in fact, that's why it wasn't particularly feasible is that the batteries originally were rather large and they kept trying to find ways of, in fact --

THE COURT: This is true?

MR. LYDON: Yes, it is. You can buy an electrically-heated cigarette as opposed to a burning cigarette today.

THE COURT: I guess I just haven't searched for it.

All right. As I say, I'll give you a little bit of latitude here, but we don't need to find out too much about the future.

MR. WHITTEMORE: May we have the redaction of recent developments, Your Honor, before it's shown?

THE COURT: Can you do that?

MR. LYDON: I think we can. Let me ask a question. Just to revisit these charts, if we took the rhetorical question, what have smokers accepted, out of there, would I be able to use the charts just to show what the effect is of filtration and reconstituted

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tobacco and permeable paper and ventilation, in fact, it does bring down tar and nicotine levels, just as a demonstrative in that sense?

THE COURT: Well, I have some difficulty telling what the chart says, but if you eliminate, what have smokers accepted, certainly, efforts to reduce tar, if this demonstrates the reduction of tar in milligrams of cigarettes over the years, I think that's scientific.

That's engineering. I don't see anything on this chart that relates to amount of cigarettes sold. It looks like, to me, reading the graph, in 1950 there were 38 milligrams of tar in a cigarette and then in 1990 there was 10 or 13. That -- there is nothing on this chart that suggests to me how much was sold or what people liked or anything like that.

MR. WHITTEMORE: Judge, I would not have a problem with that, but Mr. Lydon indicated, I think, in his prior comments, this does relate to the sales levels, which puzzled me a little bit so I need clarification.

MR. LYDON: If anything, it understates the case.

THE COURT: I think that to the extent the PL5 and PL6 do not actually reflect those sales figures but reflect scientific or engineering determinations about the content of the cigarettes over the years, that's perfectly fine. So, what has smokers accepted, is not appropriate on those and if you eliminate those, the Court may add, references to that, I am not perceiving, in spite of what you represented before, I just -- I

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don't see anything that correlates to the number of cigarettes sold.

MR. LYDON: No, it's not on there.

MR. WHITTEMORE: So my understanding is the chart shows the tar and the reduction in tar on 5 and the

nicotine and reduction in nicotine over a time period on 6 and that's all it shows?

MR. LYDON: Yes.

THE COURT: If that's what it is, the Court will permit it with the elimination of what smokers accepted.

MR. WHITTEMORE: Thank you.

MR. LYDON: Can I have a little bit of time to make the changes?

THE COURT: Yes. We are off the record.

(Thereupon, an off-the-record discussion was held.)

(Thereupon, a brief recess was taken.).

THE COURT: Are we about ready, Counsel? Mr. Lydon, are you ready to proceed?

MR. LYDON: Yes, Your Honor.

THE COURT: Sheriff, let's bring the jury in, please.

THE BAILIFF: Yes, Your Honor.

(Thereupon, the jury was returned to the courtroom.)

THE BAILIFF: Your Honor, the jury is seated in the jury box.

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THE COURT: All right. Welcome back, ladies and gentlemen. We are ready to proceed this morning.

Mr. Lydon, call your next witness.

MR. LYDON: Thank you, Your Honor. My next witness is Dr. Lipowicz.

THEREUPON

PETER J. LIPOWICZ, Ph.D.

was first duly sworn, was examined

and testified as follows:

MR. LYDON: May I proceed, Your Honor?

THE COURT: You may.

DIRECT EXAMINATION

BY MR. LYDON:

Q. Would you state your name, please?

A. Peter Lipowicz.

Q. And if you can just move that microphone just a bit away because it's sensitive to Ps.

THE COURT: How do spell your last name?

THE WITNESS: L-i-p-o-w-i-c-z.

BY MR. LYDON:

Q. Where do you live?

A. I live in [DELETED]

Q. And are you married?

A. Yes, and I have two teenage daughters.

Q. Where do you work?

A. I work at Philip Morris in Richmond, Virginia, in the research and development facility.

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Q. How long have you been with Philip Morris?
A. I've been with Philip Morris for about -- just about over 13 years.
Q. And when did you start with Philip Morris?
A. In 1988.
Q. What's your current position at Philip Morris?
A. I'm a senior principal scientist.
Q. How long have you been in your current position?
A. For about three years.
Q. Now, would you describe to the jury your educational background?
A. I have a bachelor's of science degree in chemical engineering from Washington University in St. Louis, and I have a Ph.D. in chemical engineering from the University of California at Berkley.
Q. Can you tell the jury, Dr. Lipowicz, what your Ph.D. thesis was about?
A. My Ph.D. thesis was about smoke produced from smouldering porous fuels, and that is natural material that burns without a flame. That's what smouldering means.
Q. And examples of smouldering materials might be?
A. Cotton, cellular polyurethane foam, the kind that you might find in a mattress.
Q. And what did you do after you obtained your

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Ph.D.?

A. After my Ph.D., I worked as a post doctoral fellow for two years at the Lovelace Inhalation Toxicology Research Institute in Albuquerque, New Mexico.

Q. What kind of facility is that Lovelace facility?

A. Well, it's an inhalation toxicology laboratory and has about 150 scientist.

Q. What do they do there?

A. They were founded in the 1960's to study the health effects of inhaled particles.

Q. Of inhaled particles?

A. And they are a government laboratory, at that time, run by the Department of Energy.

Q. How long did you spend at Lovelace?

A. I was there for two years.

Q. And after those two years, what did you do?

A. Well, it's a two-year appointment so I needed to find a job and I came to work at Philip Morris.

Q. Why did you go to work for Philip Morris?

A. Philip Morris was looking for an aerosol scientist, someone with my background, and I thought that I wanted to continue in that area. I worked in that for about five years already. When I interviewed, I visited the facilities, I met the people, I saw the labs. They had very nice equipment, state of the art.

Their scientists were well supported and I thought that

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would be a nice place to work.

Q. Did you have any reservations at all about working for Philip Morris?

A. Well, I had just been working for two years at an inhalation toxicology laboratory where the health effects were studied. Perhaps it's ironic to come to Philip Morris, but I also felt that -- I understood that I would be working on a safer cigarette, and that if I could make a contribution, that it would be very helpful.

Q. Have you done any work previously on cigarettes or tobacco prior to joining Philip Morris?

A. Yes. While at Lovelace, I did experiment with cigarettes measuring the density of smoke particles. And it's kind of a complicated experiment where I was able to individually weigh the very small particles and calculate the density and that was published in a peer review journal.

Q. You say that was published in a --

A. In a peer review journal.

Q. Now, would you describe for the jury Philip Morris' research and development facilities in Richmond and anywhere else they might have such facilities?

A. Well, the major research and development facilities at Philip Morris are in Richmond. There is one really large building with lots of labs in it and

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other small buildings employing over 600 people. There is a smaller facility up the road that employs about a 100. Overseas, Philip Morris' sister company, Philip Morris International, which represents the international part of the business, has a laboratory of about 200 people in Neuchatel, Switzerland. And there is another laboratory that we have called Inbifo, I-n-b-i-f-o. That's in Cologne, Germany, and it's a toxicology laboratory.

Q. What kind of work is being done at these facilities and what's the difference in what they do?

A. Well, research and development makes and designs new products for the company and, basically, to make cigarettes safer, and that's the kind of work that's being done both at Richmond and, by and large, at Neuchatel. The Inbifo facility is different. It's a testing facility. They test cigarettes and ingredients for -- prior to commercialization.

Q. Can you -- and in the facility at Richmond, can you describe the education and fields of study of the people generally at Richmond?

A. Well, the backbone, you know, the backbone of a

research facility are the Ph.D. scientists. There were about 100 there when I joined. The kinds of degrees are in physics, chemistry, biology, microbiology, toxicology, like myself, chemical engineering, and some other engineers as well.

Q. When you first arrived at Philip Morris, what did

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you do?

A. Well, when I first came, I worked in a laboratory. I was a scientist. My first -- my first project was to make a particle generator, an aerosol generator, to study how particles form in a cigarette. We thought if we can change their size, make them bigger or smaller, we could change the way they deposited and perhaps make a safer cigarette.

Q. And what other work have you done at Philip Morris, and did you, in fact, direct the preparation of an exhibit that touches upon the work that you have done at Philip Morris?

A. Yes, I did.

MR. LYDON: Could we, at this time, have Exhibit PL1?

BY MR. LYDON:

Q. And is that the exhibit that you directed the preparation of?

A. Yes, it is.

Q. Can you go through and explain -- I think you talked about the work you did on the change in particles, smoke particle size. Continuing with that as to what you did and what happened, could you tell the jury what you have done at Philip Morris?

A. Well, after doing the first job, I became the leader of the aerosol physics group. We worked on generating smoke without tobacco. That was a concept

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for maybe a very advanced product because it's the burning of tobacco that causes the harmful constituents to be in smoke, so if we can make it without tobacco, perhaps we can make a much safer cigarette.

I have worked on an electrically-heated cigarette. That's a cigarette that's involved a lot of people. The idea is to heat tobacco electrically without burning it, and by not heating it at such a high temperature and burning it, it doesn't produce as many of the harmful smoke constituents.

Q. Was that a project that was ongoing at the time you arrived?

A. That was a project that was -- I think it was -- it was just starting. It was just starting when I arrived.

Q. Okay.

A. And I led that. I mean, I led the development in

some areas of that project. I worked on an advanced cigarette filter and that is what we call selective filtration. Unlike the filters that are normally found on cigarettes, they selectively take out the harmful constituents.

I worked on carbon monoxide reduction. Carbon monoxide is something that's in cigarettes that is harmful. If we can take it out, we can make it less harmful. I've worked on smoke chemistry. That is looking at different brands, different constructions of cigarettes, measuring harmful components and how they

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vary. And then I'm in my current job, which is to look -- to find emergent technologies for a safe cigarette. That is, there are many technologies being developed in the world of science today. And, for example, the nanotechnologies that transfer matter into new and different smaller pieces and rearrange molecules, by doing that you can actually get new properties of matter and perhaps some materials that haven't worked in the past will work in nanotechnology form.

We like to apply these to our current research efforts in combustion of tobacco to reduce smoke constituents, filtration, and to actual tobacco research to try to remove some of the constituents from tobacco

that are harmful that actually are found directly in tobacco.

Q. How do you keep abreast of developments outside -- in cigarette design outside of what you yourself do?

A. Well, I look -- you know, my job is also emergent technologies and I scan the literature and I read a number of journals every week. That keeps me abreast of the world of science and technology. And I have a particular interest for things that might make a difference for cigarettes. I attend scientific meetings.

Q. Now, again, at Philip Morris, are there -- are there research and development practices and procedures

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which have been followed during the course of your employment with Philip Morris?

A. Well, on the research side, the scientists that work in Philip Morris, like myself, generally come out of university laboratories and are familiar with doing advanced research and they follow all of the same general practices, you know, that they follow to perform a valid scientific research, and that is good experimental design, good documentation of the experiment and the results and, ultimately, publication and presentation of the work.

Q. You mentioned documentation. How is the work

documented at Philip Morris?

A. Well, when I came in, I was given, you know, a laboratory notebook, which I was used to using in college. This one was a little special because it had a number on it. I had to sign it out. I had to sign every page. When I finished it, you know, I signed it, checked it for -- to make sure it was complete, and my boss signed it, and, you know, it went to the library, got microfilmed, and those records are archived and can be accessed.

Q. And have you had an occasion to look back at archived records?

A. I have done it a couple of times, but it's not something I frequently have done. But, yes, the records -- there are hundreds of these lab books and, you know, they are -- I've been able to find the ones

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that I needed.

Q. And on any occasion, how do you know to look for a lab book, for example?

A. Well, you know, the laboratory notebook is not the normal place that you go for -- you might look to a report, an internal report that's published, but sometimes you want to find, you know, some observations that perhaps didn't -- didn't make it into the report so you would look at the laboratory notebook.

Q. How are the results of research and development work maintained, then, otherwise?

A. Well, in the development side, I think what's important is that there is a number of -- there is an extra layer of rigor in, you know, documenting the results. For example, laboratories that test the cigarettes follow standards. For example, standards from the International Standards Organization, ISO, run their laboratories in that manner. But the records are kept, I mean, large -- there are great volumes of records that are kept on computer databases.

Q. And how are the results of research and development work communicated or available among scientists?

A. Well, internally -- internally, there is -- there is what are called internal reports. You write your research up in a report and then you send it to the people who need -- that should see it. You make

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presentations within the company, and that's very frequent, very common. You know, you present at external scientific meetings. You publish in journals. Patents are another way that results come out. Many of our work -- much of our work results in patents and those are -- those are published. And from time to time, the government, you know, requests information

from us or a scientific committee is set up with the government and that's another way to provide information.

Q. Now, based upon your education and experience, is there such a thing as a safe cigarette, in your opinion?

A. No, there is not.

Q. And can you explain, just a bit, your answer?

A. Well, there are many constituents in cigarette smoke that could potentially cause disease, and while we can perhaps do some -- make some efforts, make good efforts to remove those, we haven't been fully successful. When you burn tobacco and you inhale it and you do it for a long period of time, it's something that's -- that's likely to be dangerous. And there is a history of -- of harm from tobacco, and I don't think that, you know, a really and truly safe cigarette is likely today.

Q. And you were getting to my next question, which is, is a safe cigarette currently feasible?

A. I think any cigarette that's based on burning tobacco, which is the way we understand the cigarette

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today, would never be viewed as safe.

Q. What are the obstacles involved in producing safer cigarettes, and have you -- let me back up a minute here. Before we get to that point, has any of the work

at Philip Morris resulted -- your work resulted in patents?

A. Yes. I have seven patents.

MR. LYDON: Can we have PL2, please?

BY MR. LYDON:

Q. Are these the cover pages for those patents?

A. Yes, these are the cover pages for the US patents.

MR. LYDON: Can we go to PL3?

BY MR. LYDON:

Q. Are these the cover pages as well?

A. Yes, they are. And the patent's number, the date, the title, and my name as a co-inventor have been highlighted. So I'm a co-inventor on each of these patents. And to be an inventor, you have to do some work on them, get ideas.

Q. And those involved your work in alternatives, is that correct, to the conventional cigarette?

A. Yes, the electrical smoking system was something which was ultimately -- has ultimately -- has been marketed, but that's what's in the title of each one and that's been the -- that's the common theme among these patents.

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Q. Now, we were at the subject of the safe cigarette and challenges. What are the obstacles or challenges to

a safer cigarette and have you directed preparation of an exhibit which summarizes your opinions about the challenges?

A. Yes, I have.

MR. LYDON: Can we have PL4, please?

BY MR. LYDON:

Q. Can you explain to the jury just what these challenges are, taking them one by one, and what the problem is in terms of trying to make a safer cigarette?

A. Well, first, I'd like to share that the general philosophy is to make a safer cigarette is to reduce the harmful -- the harmful compounds of smoke. So why is that -- why is that hard? Well, over -- over time, over the last 50 years, 4,300 identified compounds have been found in smoke and it's taken a lot of work. No one is absolutely sure which of any of these are the ones that are -- that are truly responsible for disease, but today there has been 54 compounds that the public health community has -- has targeted. This is from experience.

Q. Now, going back in time, can you tell us how many of these compounds were identified and how many were targeted?

A. Well, of course, smoke hasn't really changed so the compounds are always there. I think even -- even, for example, say 10 years or five years ago we were

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still at 4,300 identified compounds in smoke. There is so much research. Where there has been a little bit more work is, you know, which compounds are actually -- are actually targeted. In fact, most of these 54 are from -- are from, you know, Dr. Hoffman's work and recommendations that he made to the government in the early '90's.

Q. But has -- let me just ask you this question. In terms of identifying the compounds, has science advanced in terms of its ability to identify compounds?

A. Well, science has clearly advanced in that ability and that's why there has been a progression, you know, a progression of identifying the compounds and so many have been identified over the period of 50 years, at least 50 years. I mean, the greater challenge is identifying which ones are really dangerous and assaying that. And what's still debatable today is to figure out which ones are the most important to go after. Nevertheless, there is some consensus that this list of compounds will come up over and over again so that's the list we work from. That doesn't mean that we don't want to take things off that are on that list or put on new things that aren't on that list, but there is a general uncertainty as to exactly which ones are really the most important to take out. And one of the major problems

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that you have when you try to implement a cigarette design that reduces a compound is that you might add something to the cigarette or change its design and maybe bring one compound down, but others go up. And so it's -- it's -- you are not quite sure that you are making -- you are making a big change. And the way Philip Morris has addressed that over the years is to reduce the smoke from the cigarettes generally by making lower tar cigarettes. And many of the 4,300 compounds and many of those 54 compounds are in the tar, and as you bring the tar down, all of the constituents go down. That's been the general approach.

It's also important that there has been no verified scientific test to assess whether the cigarette is safe. That may sound like a surprise. There are many tests we run, chemistry tests, bioassays, inhalation tests on animals, but there is -- none are absolutely definitive or accepted generally by the scientific community or the public health community as being absolutely predictive of health and safety. So it means that we can't take one cigarette, make a change, test it, and see whether it's safer. That's -- that's been a big drawback and we have worked on trying to improve our test methods.

MR. ACOSTA: Your Honor, I need to renew our

objection on the consumer acceptance issue.

THE COURT: All right. That will be noted.

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BY MR. LYDON:

Q. Continue with the other challenges.

A. Well, consumer acceptance is -- is important to the development and producing of our products because there are many ideas that work in the laboratory, things you might add to a cigarette that just consumers wouldn't accept or the cigarette would taste very bad or just aren't possible to -- the cigarette would change in some dramatic way, wouldn't be considered a cigarette. And, ultimately, that shows up in sales in the market, you know, it's not bought, and it's ultimately what consumer acceptance is and that's -- that's a big barrier as well.

Q. Now, has Philip Morris, in your opinion, made, from what you can observe, genuine efforts to reduce the harms from cigarettes?

A. Yes, we have.

Q. And have you seen the results of efforts Philip Morris has made in part to reduce the harms from cigarettes?

A. Yes, I have.

Q. Explain what Philip Morris has done and is there an exhibit that will assist in that respect?

A. Yes, there is.

MR. LYDON: Can we have PL5, please?

BY MR. LYDON:

Q. And can you explain just what Philip Morris has

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done over time, from your review, to reduce the harm from cigarettes?

A. First, I would like to explain that this is -- this represents our efforts that have actually, you know, made it into the marketplace, are sold as conventional cigarettes. It doesn't represent all the work that we have done in our laboratories. And it's a graph of the average tar as measured by the Federal Trade Commission method.

Q. And what are the innovations that were made?

A. Well, the innovations that were made that you can -- that are found in conventional cigarettes are filtration, permeable paper, reconstituted tobacco, ventilation, and expanded tobacco.

Q. And when was it that the three items at the top there, filtration, reconstituted tobacco, and permeable paper, when were those introduced to the cigarette, approximately?

A. Approximately, in the late 1950's.

Q. And just describe, if you can, what filtration is and how it works in a cigarette.

A. Of course, the filter on the cigarette is that -- that white part that's attached to the tobacco rod and it's constructed of thousands of small fibers that actually catch -- that actually catch cigarette smoke particles. So the tar, which mostly represents the particles of the cigarette, that's what you see, is caught by the filter and that's how it reduces tar.

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Q. Now, prior to the introduction of filters, what were cigarettes? What kind of product was it?

A. Well, we call it today unfiltered cigarettes, which is just a tobacco rod. It's tobacco wrapped in paper.

Q. And what were the average levels of tar in those cigarettes?

A. Well, with the charts you can read there around 35 milligrams to 38 milligrams of tar.

Q. What was the impact of filtration?

A. Well, you can see that filters was a major change and right after that -- right after they were introduced, you know, the average tar went down. You see how far it's gone down.

Q. Now, there were other things that were introduced near that time as well; is that correct?

A. That's correct.

Q. Can you explain just what reconstituted tobacco is

and how it impacted tar levels?

A. Reconstituted tobacco is tobacco that's made from -- it's a tobacco sheet that's made from tobacco that might otherwise be wasted and that tobacco is ground up, water is added, some things are extracted from the tobacco, and it's reformed again into a sheet and cut up and used in our cigarettes. And because it's been through that process and things have been extracted from it, when it's burned in a cigarette, it makes less

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tar. And so it's used as one of the blend components in a cigarette, along with other tobaccos, to lower tar.

Q. The next item indicated, permeable paper, how does that impact tar levels?

A. The paper, of course, wraps the cigarette and it's permeable to air. That means that air can come through and that's what allows a cigarette to burn. So if you increase the permeability and you allow air to come through, it does two things. One, it increases the speed at which the cigarette burns, and that can reduce tar, and also lets some gases out that develop from combustion to leave a cigarette.

Q. And ventilation, now that's indicated as coming at a later point, looks like in the '60's; is that right?

A. That's correct.

Q. And what is ventilation and how did it affect tar

levels?

A. Well, first, let me tell you how we do ventilation, and you can see there is -- you can see these rows of holes. They are small holes that are made in the paper surrounding the filter. And when the cigarette is inhaled, rather than having all of the air come through the coal of the cigarette, some of the air actually comes into those ventilation holes, and that actually reduces the amount of tobacco that's burned and reduces the amount of smoke generated so it has a dramatic affect on tar levels. I would also like to point out that ventilation reduces some of the gaseous

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compounds as well. So things like carbon monoxide, which is in smoke, you can't filter that with filters you use for tar, but it is reduced by using ventilation.

Q. What is the next item there, expanded tobacco? Can you explain what expanded tobacco is and how it affected tar levels?

A. Well, expanded tobacco is tobacco that's treated in a way that actually Philip Morris invented. Basically, it's puffed. It's puffed so that you could fill a cigarette with less tobacco. Now, we don't fill cigarettes entirely with expanded tobacco, but it's used -- it's used in a blend. By having less tobacco in a cigarette, it generates less tar.

Q. Now, over the course of time, what does the -- that graph show in terms of what has happened in tar levels in cigarettes?

A. Well, it shows a dramatic -- it shows a decline from around 35 milligrams or 38 milligrams down to less than 12 milligrams, and that's probably around where it is today.

Q. Now, what about nicotine? Has Philip Morris made efforts to reduce nicotine levels in cigarettes?

A. Yes, we have.

Q. Is there a chart similar to this one that reflects what happened to nicotine levels?

A. Yes, there is.

MR. LYDON: Can we have PL6, please?

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BY MR. LYDON:

Q. Can you tell us what you show there?

A. Well, this is the nicotine milligrams per cigarette as measured by the Federal Trade Commission Smoking Method plotted versus the year in a similar way that the previous graph was done for tar.

Q. How did Philip Morris go about bringing down the nicotine levels?

A. These are really the result of the same changes that we introduced to cigarettes to reduce tar. And so as -- as a filter can filter out the tar, nicotine is

often in the tar, that's filtered as well. The very same changes that we made to change tar also reduced nicotine.

Q. Now, are there products manufactured by Philip Morris that had -- well, let me back up a minute. That shows nicotine milligrams per cigarette of 2.7 or 2.6 to 2.7 in the '50's; is that right?

A. Correct.

Q. And it shows them dropping to about .8 in the '90's; is that correct?

A. That's right.

Q. Are there products of Philip Morris that have nicotine delivery levels lower than what's depicted in that exhibit?

A. Yes. I believe our lowest nicotine delivery levels are around .1 milligrams, which is actually below where the bottom of that graph is.

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Q. And have products with lower levels of nicotine been offered in the '80's and '90's?

A. Yes, they have.

Q. And were there products in the '60's and '70's that, in fact -- well, in the '70's, at least, that were lower than what's shown in that chart?

A. Yes, there were.

Q. So these are average?

A. Yes, that's correct.

Q. Now, how -- and, again, how did these levels come down?

A. Well, they came down from filtration, permeable paper, reconstituted tobacco, expanded tobacco, and ventilation. And those are all the changes that we -- those are the major changes, I should say, that we introduced to cigarettes that reduced tar and also reduced nicotine.

Q. Dr. Lipowicz, can you take nicotine out of a cigarette altogether?

A. It is possible to remove virtually all the nicotine from tobacco and make a cigarette out of it.

Q. And so it's feasible to do that; correct?

A. Correct.

Q. Has it been done?

A. Yes.

Q. And how was that accomplished?

A. Well, Philip Morris devised a process in the late

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1980's to take nicotine from tobacco and they used a very -- it was a new technology called supercritical fluid extraction. It's fairly complicated, but it involved high pressure carbon dioxide that could dissolve the nicotine and take it from the tobacco.

Q. And what kind of effort was put into that by

Philip Morris research and development, from what you saw?

A. Research and development made the process, really, designed the process. Ultimately, you know, a plant was built, a commercial plant was built to make these tobaccos for introduction into commercial cigarettes.

Q. Where was the plant constructed and at what cost?

A. Well, that plant was constructed about 20 miles south of -- 20 miles south of Richmond in a place called Bermuda Hundred and the cost was $250 million.

Q. And was that plant devoted totally to the denicotized cigarette?

A. Well, that was the purpose of the plant to denicotize, to take nicotine out of tobacco for the cigarette.

Q. And was -- that product, was it successful?

MR. ACOSTA: Object to form, qualifications, foundation.

THE COURT: Beg your pardon?

MR. ACOSTA: I object to the question based on qualifications and foundation.

THE COURT: I understand, but it's a very limited

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question. It doesn't go into marketing surveys or anything. I'll permit it.

THE WITNESS: Well, the product was offered in

test markets.

BY MR. LYDON:

Q. Let me just -- did it work? Was it -- did it do what you thought it was supposed to do in terms of no nicotine or little?

A. It took out most of the nicotine. I mean, it was able to get it below .1 milligrams, but it just is not possible to take out all nicotine. It was over 90 percent.

Q. Then what happened with that product?

A. Well, it was commercialized to the extent of going out in a test market and cigarettes were made from this tobacco and it was sold under test markets under brands like De-Nic and Next. And, you know, the test markets failed and were stopped. By my understanding from discussions that I have had, the sales were low.

Q. Now, are you familiar with an organization known as the Institute of Medicine?

A. Yes, I am.

Q. And what is the Institute of Medicine?

A. The Institute of Medicine is set up by the National Academy of Sciences, which has a charter from the Congress to advise the federal government, and it consists of physicians and health scientists and they

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are the preeminent advisors to the United States

Government on matters of public health.

Q. And has the Institute of Medicine done any work in the area of smoking and health?

A. Well, yes. Recently, they were asked by the Food and Drug Administration to prepare a study or report on how to regulate the claims for safer cigarettes.

Q. And how has Philip Morris reacted to this study?

A. Well, we have reacted favorably. I mean, we have laid out a plan that's perhaps possible for regulation.

Q. And can you explain just what it is that Philip Morris is doing?

A. Well, the purpose -- in this report, it outlines how cigarettes might be regulated. Now, today cigarettes are regulated, but not specifically for the claims that we might make. There is no way to make such a claim and the IOM, or Institute of Medicine, has given out 11 precepts and we have adopted those internally as much as we can. And one of those, I think it's precept No. 4, that -- it says how a cigarette should be tested, if you want to make a cigarette claim that it's safer, what sort of testing should be done, who should look at that testing. For example, it recommends that human exposure measurements be made, that is, actually look at how people who are smoking are exposed to a cigarette,

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what kind of smoke intake they have as opposed to just machine testing that had been done in past, and we are conducting studies now to do that.

Q. Now, does Philip Morris accept the Institute of Medicine's position that tobacco use causes serious harm to human health?

A. Yes, we do.

Q. Did Philip Morris always hold that position?

A. No, we did not.

Q. What was Philip Morris' earlier position?

A. Well, when I joined the company, I mean, the position was roughly that smoking was a risk factor for disease.

Q. And what do you mean by that, risk factor?

A. That means it was associated statistically with disease, that is, recognized that the epidemiologists said that if you smoke you are more likely to get disease, and if you stop, you are more likely not to get disease.

Q. And what else did the company's position say about the risk factor? Explain further.

A. Well, that it was not a cause of disease, but that it was a risk factor for cancer, for lung cancer.

Q. Can you explain, if you will, the difference between the epidemiology and the cause of what that

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position involved?

A. Well, the reason -- the epidemiology really had been pretty well developed, even when I joined the company. The reason for Philip Morris' position was based on, you know, lack of a proven mechanism for causation of cancer, that is, exactly how cigarettes causes disease was not known.

Q. And, today, is the mechanism for how disease is caused known?

A. Well, it's still not known. There are many possibilities. Research was going on. This is a subject that's addressed in the Institute of Medicine's report and it's still not a known mechanism.

Q. Why did Philip Morris make -- well, you answered the question. Why did they maintain that early position, if you haven't answered that?

A. Well, I think for the reason they had a very high standard of proof, of requiring that, you know, a mechanism, a biological mechanism for causation would be there and that's why they held that.

Q. And why has it changed its position?

A. Well, it was -- it became clear that there is overwhelming scientific and medical consensus that smoking causes cancer and other diseases and Philip Morris just ceased to argue, you know, with the

public health authorities and sided with the public health community.

Q. About mechanism?

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A. Well, just about causation. Just about causation.

Q. Now, does Philip Morris accept the position that smoking is addictive?

A. Yes, it does.

Q. What about nicotine?

A. Well, Philip Morris doesn't have an -- our position is smoking is addictive and that's the products that we make are smoked. We don't have a definitive stated position on nicotine.

Q. Can you explain what the thought is about nicotine as a component of smoking?

A. Well, we understand that, first, that nicotine is a very important part. It's an important part of smoking. And, secondly, there has been a number of products, you know, put up for sale that are just nicotine over the last few years, smoking cessation devices, patches, inhalers, gums, that really just deliver nicotine, and there hasn't been much evidence, you know, from all those sales that nicotine in that form -- form is addictive.

Q. But Philip Morris does accept the position that smoking is addictive?

A. Yes, we do.

Q. Did Philip Morris always hold that position?

A. No, we did not.

Q. What was the earlier position?

A. Well, I mean, that smoking, you know, smoking was

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not addictive.

Q. And why did it change -- why did Philip Morris change its position?

A. Philip Morris was applying sort of a classical, rigorous definition of addiction, and as that -- and smoking didn't necessary fit that definition, but as the scientific definition of addiction has changed, smoking does fall within the definition, so it's correct to say today that smoking is addictive.

Q. Now, can you explain further what influence the Institute of Medicine has had on research and development at Philip Morris?

A. Well, Philip Morris is very interested in -- to make a safer product, to make a cleaner product for our consumers. Something that we don't do today is -- we make products that I think are safer because they have lowered tar and nicotine and other smoke constituents, but that's not claimed to our consumers. So in order to make such a claim, to make such a product and make the claim, there has to be a rigorous methodology for

testing the validity of that claim. And we would like our smokers to know, if they are buying a cigarette because it's safer, that the best science has gone into that because it's been looked at and reviewed by the competent scientists. I think the IOM in this report gives a process, describes a process by which that can be done.

Q. Do you personally believe that the product changes

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that you previously described, filtration, permeable paper, reconstituted tobacco, expanded tobacco, ventilation, that they have reduced the harm to smokers?

A. Well, yes, I do. And, I mean, for the reasons -- I mean, I have given earlier, reduced tar, nicotine, so many of the other smoke constituents. And I have read reports where the government has reviewed -- since these have been done over 50 years, there is a chance to actually review the disease epidemiology, that is, how much a disease is being caused, and there has been reductions and so I feel confident that they are safer. Nevertheless, I just would like to point out that it's not a claim that we make to our consumers.

Q. Why does Philip Morris want to make scientifically based claims to smokers about one cigarette is safer than another?

A. Well, I'm not sure that we want to make a claim

exactly like that. What we want to do is make a cigarette, make an advanced cigarette that is safer and be able to tell people that it's safer so that they might, you know, have an informed choice about smoking it. So right now, we have some technologies to make cigarettes safer. We are using those technologies. But without the information, consumers not knowing that it's safer, you know, they wouldn't -- they wouldn't know, not even know to try it. So we would like to have the ability to communicate with consumers in a direct and

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scientific valid manner.

Q. Now, can you describe what other efforts Philip Morris has made more recently, and have you prepared an exhibit in that respect?

A. Yes, I have.

MR. LYDON: Can we look at PL8, please?

BY MR. LYDON:

Q. And now, you talked about De-Nic; is that right?

A. Yes, I did.

Q. At the time that De-Nic was introduced -- that's the cigarette without nicotine; correct?

A. Correct.

Q. Was that a result of the latest in advances in science and cigarette design?

A. Well, that was a great example of pulling

technology out from the world and using it in cigarette design. So I had gone to -- I'm a chemical engineer. I had heard of supercritical fluid technology at Berkley, and I think there were studies going on there using it, and I was pretty surprised to see that in a consumer products company using tobacco. So that was -- it was impressive to me.

Q. What about the next item you have indicated there, an electrically-heated cigarette? What would be the purpose of electrically heating a cigarette?

A. The purpose of electrically heating the cigarette is that you can control the temperature. So, basically, you take an electric heater you apply to tobacco. It's

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all very miniature, not like I'm showing you. And you raise the tobacco to a temperature that you can generate smoke but not burn the tobacco. And we use chemical measurements and bioassays and inhalation assays to see the toxicity of the smoke is very much reduced.

Q. What would be the benefit of heating of tobacco versus the burning of tobacco?

A. Well, it's the temperature and so, you know, most of the compounds that you find in cigarette smoke aren't actually found directly in tobacco. They are the result of burning. And as temperature changes, the kind of reactions that tobacco is subject to also change, and we

have found generally that lower temperature is better. We can't make tobacco burn at a low temperature. Burning does imply a high temperature.

Q. What's the next item listed there in terms of developments?

A. That item is banded paper and that's a cigarette that has regions of very low permeability on the cigarette, little bands that cause it to burn a little differently, a little slower. It's been put out into the market on the Merit brand for the purpose of reducing ignition propensity or really to make cigarettes more fire safe.

Q. Just going back to the electrically-heated cigarette, have there been limitations in terms of the feasibility of heating a cigarette versus burning a

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cigarette over time?

A. Well, there are tremendous limitations in the feasibility. For example, we don't have the ability ourselves to manufacture that product directly, so we make the cigarettes, but we actually had to hire Sanyo in Japan, a producer of electronic devices, to make the lighter. We had to develop the heating material. So the heating material that you normally would use for something like this, which are nickel chromium, they contain nickel and chromium, which are ingredients that

they would not let us use under any circumstances, we had to go to Oakridge National Laboratory and spend millions of dollars to develop a new alloy called ironaluminide to make a safe heater. And there are a number of these items, the batteries and circuits that we use, and it's a complicated device and it's very difficult to make it at a reasonable cost.

Q. Is there a product that is an electrically-heated cigarette?

A. There is a product called Accord with a very small market. It's been out since 1997 in the Richmond area.

Q. Is that the product of this research work that you just described?

A. Yes, it is.

Q. What about this last item, TSNA tobacco? Explain what problem that addresses. What's that about?

A. First, I'd like to explain what TSNA is. That's tobacco specific nitrosamines, a chemical compound

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identified for a long time as being possibly carcinogenic, and these are tobacco specific nitrosamines found in many environments. Some are only found from the burning of tobacco, and so we would like to make cigarettes that produce less nitrosamines. It was recently found that some of the nitrosamines were being formed in the curing process. Farmers who have

tobacco cure it and it alters the properties of tobacco. It's a historical process that goes back a long time, the process. So we are learning how to change the curing practice. Philip Morris invested, I believe, $35 million in helping farmers to change their practices, actually change their curing barns. And this tobacco is being grown in the fields right now to be harvested and we expect to use it the product as soon as it becomes available.

Q. This is a somewhat recent discovery?

A. Yes, it is.

Q. Do you believe Philip Morris is a company that has been committed to trying to design a safer cigarette during the course of your employment?

A. Absolutely.

Q. And based upon your review of the work that has preceded you, do you believe that Philip Morris is a company committed to trying to design a safer cigarette?

A. Absolutely.

Q. Does Philip Morris add ingredients to cigarettes?

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A. Yes, we do.

Q. What is added to cigarettes?

A. Well, you know, anything that's not tobacco in a cigarette is considered an ingredient. For example, things like ink that prints the name of the cigarette on

the paper is an ingredient and is carefully monitored. The glue that holds the paper together is another one. The ingredients that are the most important are the flavors that we add to tobacco, for example, cocoa or liquorice.

Q. Why are those added?

A. Well, they are flavors and they change the flavor and taste of the smoke. There are three components to, you know, a cigarette design. One is the design itself, all the features that I mentioned, ventilation, filtration, and so on. Tobacco blend is a number of different tobaccos blended for a certain taste. Flavors are added. All companies know how to do the blending and can use some of those design features. Flavors are different for each brand and provide a distinct taste.

Q. Have there been procedures that have been followed by Philip Morris to determine if ingredients, added ingredients, in fact, are harmful in smoking?

A. Yes, there are procedures in place.

Q. Have these procedures been followed?

A. Yes.

Q. Can you describe what those procedures are, please?

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A. Today we have 119 ingredients. The kind of process that we have is if we specifically want to add a

new ingredient, we collect all the scientific research available on the ingredient and look at whether it is used in other food products. For example, many ingredients in food, the FDA maintains a list of the generally recognized ones as safe. We know that doesn't necessarily mean it's safe for tobacco use. We do more tests with our ingredients, heat them up to see how they behave in cigarettes, very extensive studies. We have a toxicology laboratory in Chicago where we are testing individual ingredients in cigarettes.

Q. Historically, what's been done with respect to reporting and testing ingredients? How has it been handled?

A. I'd like to point out our company make the flavors for Philip Morris International, and so we are subject to the laws and regulations around the world. So there are countries that have regulated tobacco ingredients in a different manner, perhaps more rigorously than the United States. We have met those regulations. For example, one of the principles now is if any ingredient is banned in a country we don't use it with respect to this country.

Q. By any country?

A. The industry is told to disclose all ingredients, I believe, disclosed to the Department of Health and

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Human Services. That's been -- we have also disclosed at the same time in 1990 ingredients to Texas and State of Massachusetts.

Q. Have you also submitted your ingredients for testing to other groups?

A. Well, there has been -- we have been testing our ingredients in the Inbifo laboratory, toxicology laboratory, and so those kinds of tests have been -- have been reviewed as well.

Q. Have there been submissions to independent testers?

A. Sometime in the early '90's the industry assembled a group of six eminent toxicologists to review all the ingredients.

Q. Now, as a result of all the testing of the ingredients, are you familiar with the results of the testing?

A. Yes, I am.

Q. And based upon your review of the results of all this testing, do you have an opinion as to whether the ingredients are safe as used?

A. Well, I'd like to point out that what I have been able to review is a review by others and they reviewed all the ingredients, and a lot of the conclusions were the ingredients were safe as used in cigarettes.

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Q. Why is cigarette smoking dangerous to human health?

A. I think there is an inherent danger from combustible tobacco, inhaling directly into your lungs. It's a repetitive behavior that you do for a long time. I think that's what makes it dangerous. While it's been studied a long time, 50 years, and we do have an increased understanding, there is an inherent danger in terms of what we know.

Q. Are you aware of any efforts Philip Morris could have made to provide safer cigarettes that were not implemented?

A. No, I'm not.

Q. Are you aware of any available technology that could be used in any way to provide a safer cigarette?

A. No, I'm not.

MR. LYDON: That's all the questions I have.

THE COURT: Cross?

MR. ACOSTA: Your Honor, I do. It's five after 11:00.

THE COURT: Let's take a brief recess at this time. All right. 10-minute recess.

(Thereupon, the jury was excused from the courtroom.)

(Thereupon, a brief recess was taken.)

THE BAILIFF: Back in session. You may be seated.

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Judge, would you like me to bring the jury in?

THE COURT: Well, let's wait until the witness has resumed the stand.

Are we ready to go, gentlemen?

MR. LYDON: Yes, Your Honor.

THE COURT: Bring the jury back.

THE BAILIFF: Yes, Your Honor.

(Thereupon, the jury was returned to the courtroom.)

THE BAILIFF: The jury is seated in the jury box.

THE COURT: All right. Mr. Acosta, you wish to inquire?

MR. ACOSTA: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. ACOSTA:

Q. Mr. Lipowicz, did I pronounce that correctly?

A. Yes, you did.

Q. Lipowicz? I'm Howard Acosta. I represent Mr. Tune. I have a few questions for you.

You, as I understand it, graduated from college sometime in the early '80's, got a Ph.D. around 1986, and then went to work for Philip Morris in either '88 or '89; is that about right?

A. Yes.

Q. And so you have been working now at Philip Morris for about 13 years or so?

A. Correct.

Q. And in your job, you are in the research and

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development department at Philip Morris; is that correct?

A. Well, it's called Research Development and Engineering.

Q. Research Development and Engineering?

And you deal primarily with cigarettes at Philip Morris; true?

A. Yes, we are a cigarette company and that's our -- our product.

Q. Okay. And you mentioned, I think, on your direct testimony, that from time to time you had occasion to look back at prior reports and so forth that had been produced by others before you at Philip Morris?

A. That's correct.

Q. And I take it there must be a research library there; is that correct?

A. There is a library.

Q. Do you know when that library began?

A. You know, I don't know exactly when it began. I know it was there when I joined in 1989.

Q. Did you have occasion to go back and look at

Philip Morris' reports back in the '60's for any reason?

A. I have seen reports from the 1960's.

Q. For what purpose did you go back and review reports from the 1960's?

A. Well, there is -- has been, for example, as we are trying to reduce, you know, harm in our cigarettes, I

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like to review work that has been done. That's one example of how I've seen some of those reports.

Q. And how about the 1950's? Did you go back and look at reports in the 1950's to see how Philip Morris was reducing harm from its cigarettes?

A. I have seen a few of those reports.

Q. How far back did you go to look to see reports? Well, let me -- I didn't ask that very clearly. Are there reports from the 1940's?

A. I'm not sure.

Q. Do you know when Philip Morris developed a research -- a research department?

A. It was around 1953 or 1954.

Q. And then I believe you mentioned that you reviewed some of the reports indicating that it must have been after 1953 or '54 that they started taking harmful things out of the cigarette?

A. I don't believe I -- I said that.

Q. Well, that's what I'm asking you.

A. I have -- I have reviewed, you know, documents after 1954 indicating that there were attempts, you know, showing some of the research that was done to reduce harmful compounds.

Q. So in doing that, then, they would have had to form an opinion that something was potentially harmful in the cigarette and could cause injury to human beings; is that true?

A. Well, I think the key word that you mentioned was

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potential. So, I mean, things could be suggested and, you know, as being -- I mean, a good practice would be to test out things that are suggested.

Q. And some of the things that they found in the cigarette back in the mid 1950's were substances that would cause or were thought to cause cancer; is that true?

A. Well, what they -- what they found were -- were, you know, were chemicals that, you know, were suspected, as you said, suspected carcinogens.

Q. And they thought in the 1950's that -- well, let's strike that. You are aware that publicly in 1954 Philip Morris took the position that cigarettes were not injurious to health?

A. Well, I haven't seen that public position.

Q. You haven't seen that?

But you know internally that they knew that there was something harmful in the cigarettes in the mid-1950's that they wanted to take out; is that true?

A. There has been a history of identifying compounds that are harmful or potentially harmful and trying to take them out, and that does extend back into the 1950's.

Q. And that's because people at Philip Morris wanted to make a safe cigarette if they could; right?

A. Well, I know that looking in retrospect, okay, from what we know now, that taking out some of the

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compounds could make a safer cigarette. I don't know exactly, you know, what -- what you just said, exactly. That's the way it was -- was -- was phrased. I wasn't here in 19- -- I only joined the company in 1988 so I don't know exactly what -- what they were thinking in the 1950's.

Q. Well, do you know if any of the carcinogenic substances that they found in cigarettes back in the 1950's, for some reason, are no longer deemed carcinogens today?

A. Well, I know that -- I mean, compounds that we have found, I mean, are still things that we are trying to take out. They are still suspected, but I think that their status hasn't changed that much. We are not sure

that there is any particular compound causing harm in smoke. And reviews by public health scientists, including the Institute of Medicine, agree with us that there is no single compound to take out of smoke to make it safe.

Q. Well, you would agree that today Philip Morris believes there is what, at least 58 carcinogenic compounds in cigarette smoke?

A. Well, I -- I mentioned that we had 54 compounds that we were trying to reduce. I'd like to point out that, you know, there are different kinds of the carcinogens. Not everything on the list is carcinogenic so even though smoking causes cancer, one doesn't just look to the carcinogens to remove. For example, we want

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to remove carbon monoxide, which is not implicated in lung cancer, but perhaps in heart disease.

Q. Well, for now, let's talk about some of the compounds. There are polycyclic aromatic hydrocarbons in cigarette smoke; correct?

A. That's correct.

Q. And it appears that there is at least 10 of them which are listed as carcinogenic. Is that -- do you agree with that?

A. I mean, there are -- there are many, you know, about 300, I would say, polycyclic aromatic hydrocarbons

in smoke. I'm definitely familiar with a couple of them as carcinogenic, and I wouldn't -- it's not-- you know it wouldn't surprise me if some of those PAHs were carcinogenic. We have a specific list. I don't have it in front of me. And the number of the PAhs are probably 10 or a dozen.

Q. So you will agree there are 10 to a dozen, something like that? Then there is another group called heterocyclic compounds. Do you know what those are?

A. Yes.

Q. Those are carcinogens as well, aren't they, some of them?

A. I mean, not all heterocyclic compounds are carcinogens, so we have different chemical classes.

Q. Now, there are six of them in cigarette smoke that are carcinogenic?

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A. That's right.

Q. And then we have got nitrosamines, which you talked about; right? Those are nicotine specific, aren't they?

A. Well, they are tobacco specific nitrosamines. I mean, that is, there are nitrosamines that are produced from a lot of different sources. They are produced from organic material containing nitrogen, but there are certain ones that are only found in tobacco, so those

are tobacco specific nitrosamines.

Q. Okay. Well, they are called NNK and NNN?

A. Yeah, and there is NAB and NAT. These are established to be tobacco specific nitrosamines.

Q. And there is at least 10 of them in there, isn't there?

A. The ones that -- the ones that we measure that have been identified, you know, by the public health authorities for removal especially are those -- are the four. Those are the ones we work on, NNK and NNN. There are some of them that are removed fairly effectively. They are volatile -- volatile nitrosamines.

Q. And some that aren't?

A. And there are some that aren't. Cigarette smoke does contain nitrosamines.

Q. And then there is another group called aromatic amines or amines? How do you pronounce that?

A. Amines.

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Q. It looks like there are at least four carcinogenic amines in cigarette smoke?

A. Yeah.

Q. Do you agree with that?

A. I don't have -- I don't have the list in front of me specifically as to what all the compounds are. I

know that those sorts of compounds are on our 54.

Q. All right. There is something called N-heterocyclic amine. What's a heterocyclic amine?

A. Well, a heterocyclic molecule is one that contains -- doesn't just have carbon, it might have another atom, like nitrogen.

Q. And there are about eight or so of them that are carcinogenic in cigarette smoke?

A. Well, like I said, I don't have -- I don't have that list. I know that some of those compounds are on our list. I would like to point out that not everything that's on our list is there because it's carcinogenic. That might surprise some people, but it's not just the carcinogens that could cause cancer. There are other mechanisms, things like promoters, that could irritate the lung that we are trying to remove.

Q. The irritants themselves can lead to cancer; true?

A. I don't have a detailed understanding of all the mechanisms, but it's clear there are irritants in smoke like formaldehydes that can damage cells. There are some theories that might lead to cancer.

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Q. Ammonia would be one of them, wouldn't it?
A. Ammonia is not something, I believe, that's implicated in the health risk of smoking.
Q. Are you familiar with the National Cancer

Institute's Monograph 13, Risks Associated with Smoking Cigarettes with Low Machine-Measured Yields of Tar and Nicotine?
A. I have read some of that book.
Q. Are you aware that it indicates ammonia causes irritation of the respiratory tract?
A. Well, I would like to see.
Q. Would you like to see this, what I'm referring to?
A. Sure.
MR. ACOSTA: May I approach, Your Honor?
THE COURT: Okay.
THE WITNESS: Thank you.
Well, ammonia, you know, ammonia is present in microgram quantities in smoke, and which -- that's a millionth of a gram. So the kind of -- you know, ammonia is considered to be a dangerous gas, but only high concentrations, people that use it around refrigeration. Your body has lots of ammonia in it. It occurs from the natural breakdown of proteins. It's in your body much more than you get from smoke and it's something that occurs from the breakdown and combustion of proteins in cigarette smoke
BY MR. ACOSTA:
Q. But you do get it from cigarette smoke; correct?

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A. Yeah. And you also are exhaling it right now and,

yes, you would get some from cigarette smoke, correct.

Q. And ammonia is one of the things that is used to adjust pH levels in smoke, isn't it?

A. We don't adjust pH levels in the smoke, either with or without ammonia.

Q. A pH level -- pH is -- can you -- it describes alkalinity versus acidity; correct?

A. Yes. It's acid and bases. The relative acidity is measured with pH.

Q. And the human body has a certain pH level, right, somewhere in the 7-something?

A. That's correct. It's about 7.4. For example, water has a pH of about 7. It's considered neutral.

Q. And cigar smoke has quite a high alkalinity figure, doesn't it?

A. Well, I've seen data for cigar smoke that says it's over 7, maybe 7 1/2. If water is 7, while it's higher than a cigarette, but I wouldn't call it particularly high. High would be 12 or 13, 14, the kind of things that --

Q. The cigar is not designed to inhale; is that correct?

A. I mean, the cigar was, you know, invented centuries ago, and it's used -- I mean, some people do inhale cigars, but it's, I mean, it's very much like a

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cigarette except that it's a tobacco leaf wrapped around tobacco, not ground up, and obviously much larger, and you light it and you smoke it, I mean, you know, however you want to.

Q. And the -- but would you agree that generally cigars are not inhaled by the smoker?

A. Well, I mean, I have just read evidence that they are inhaled sometimes. I just object to the fact that you said they were designed that way. I think the kind of people that were designing cigars a long time ago weren't really thinking about that. But I agree that there is -- they are not inhaled the same way cigarettes are.

Q. And that's pretty much the same way with pipe tobacco, too, isn't it? Pipe tobacco is harsh and difficult to inhale?

A. No, I don't really track pipe tobacco. I have smoked a pipe once and found that it was harsher.

Q. But cigarette tobacco is blended specifically so that it can be inhaled; is that correct?

A. You know, I wouldn't necessarily agree with that. I know it's blended in a way that makes a cigarette the way that people expect. People expect to inhale their cigarette, then.

Q. Philip Morris attempts to, for example, with

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Marlboro cigarettes, to make all of the cigarettes within that brand, let's say within a carton, to be virtually the same in pH; true?

A. That's not correct. When we -- we like our cigarettes, Marlboro or any other cigarette, we like them to be fairly similar to each other because people who smoke the cigarettes want to get the same experience each time they smoke the cigarette and not take one out of the pack and have it taste one way and the next cigarette tastes the other way. But pH is not a standard measurement that we use. It has been measured in our research laboratories sometimes in response to some allegations, but the standard measurements that we make for our cigarettes and that we report to the government under the Federal Trade Commission Smoking Test, you know, is tar and nicotine. PH is not something that we measure routinely for product approval.

Q. But you know if the pH was too high it would make the smoke harsh and the person won't be able to inhale it; is that true?

A. Well, you mentioned you won't be able to, and I know that I have smoked a cigar. I tried inhaling and it's possible. I know people do. A cigar is much harsher, just from my own experience, than a cigarette.

So I think it's very high pH, like a cigar is a harsher than a cigarette. I don't know exactly where you draw

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that line in terms of pH or even if pH is what you measure. A cigar is just different than a cigarette. I mean, pH is one thing that makes it different, but clearly just look at a cigar, how it's made. While it's similar and it has tobacco, it's obviously different from a cigarette.

Q. Cigars aren't nearly as unsafe as cigarettes, are they?

A. Well, there is no safe tobacco product that I know of. I mean, there are perhaps different risks associated with cigars, but the cigar is not a safe product. I'm not aware of the government saying that cigars are safe or even that they are definitively safer. They have different risks.

Q. Well, let's stick with cigarettes now. You said that there is no such thing as a safe cigarette?

A. That's correct.

Q. And there never has been any such thing as a safe cigarette, has there?

A. That's correct.

Q. You said that the cigarette is inherently dangerous?

A. That's correct.

Q. And when you design the cigarette, you said that you wanted to make them safer, if you could; correct?

A. Yes.

Q. And in order to make the cigarette safer, you would -- wouldn't you want to know the magnitude of the

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risk of cigarette smoking in determining what you can do to make it safe?

A. Well, in fact, I think the principles that we apply would be that -- would not necessarily require that information. I mean, we require that information to have the -- I mean, to go in the first place to make it safe. But to make it safer, the theory is there is no perfect theory for this, but that less is better, less smoke, less of those constituents that you mentioned would be better.

Q. What I'm trying to find out is how unsafe is it, is the cigarette?

A. How unsafe?

Q. Yes. How unsafe is it?

A. Well, you know, all the cigarettes, you know, are labeled as being essentially unsafe and a risk to human health. I have never seen a study that really absolutely determined specifically how unsafe in those terms. There are specific risks for diseases that depend on the cigarette and your smoking history, but I

don't -- it's derived from epidemiology which is not totally a precise science at which you can arrive at an absolute risk, but the risks are significant, don't get me wrong. The risks are significant.

Q. Well, in terms of risks, would you agree that smoking is responsible for more than one of every six deaths in the United States?

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A. Well, you know, I know, for example, I have seen numbers like that. I have seen numbers that are higher from, for example, the Surgeon General, one in three or one in four. So if there is no agreement among public health, it's hard to agree clearly whether it's one in six, one in four, one in 10, one in 100. It would be very significant risk. I don't think we need to know precisely how dangerous it is in order to be motivated to go forward and make cigarettes safer.

Q. Well, Philip Morris doesn't disagree with the 1989 Surgeon General's report on how unsafe it is, do they?

A. Well, I'm not aware we have positions specifically on the 1989 Surgeon General's report. I think what's important is that we agree that smoking causes cancer. It's important that we have these warnings on our packages saying that smoking causes cancer.

Q. When you came to the company in 1988 -- was it '88 or '89?

A. It was December 12, 1988.

Q. Okay. So by 1989, the company's public position was that cigarettes did not cause cancer. I think that's what your testimony was; is that correct?

A. Well, my testimony -- I mean, that was part of it. I also mentioned that cigarette smoking was a risk factor for human disease. That's how I generally understood -- understand the position.

Q. I understand, but the company maintained a public position that cigarettes did not cause cancer through at

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least 1998; is that correct?

A. Yes. I mean, we -- it's not exactly true because what you can't say is in 1998 the position was smoking causes cancer and there was other positions about risk factors. Clearly, there was a big change in 1998.

Q. And there were -- what was it that all of a sudden caused Philip Morris to just say, okay, in 1998 we will tell the people that we believe cigarettes cause cancer for the first time ever? What came -- what caused that change to occur?

A. Well, you know, I have not been part of that actual decision, but I would, you know, I think the explanation is to cease arguing. I've seen discussions that are printed sometimes among health authorities where they mention it's very important for Philip Morris

to acknowledge the health risks of smoking in order to get on with positive discussion. So, for example, Philip Morris is now seeking regulations of tobacco products, and in order to go on with those sort of conversations we have accepted the overwhelming scientific and medical consensus.

Q. It's been overwhelming for a long time, hasn't it?

A. Well, I don't know particularly when it's gotten overwhelming. I know that in '64 was really a time when the Surgeon General said it causes cancer and evidence has been building since that time.

Q. And, in fact, it kept causing more and more and

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more cancer until around 1990, correct, cigarette smoking did?

A. Well, cigarette smoking, I mean, continues to cause cancer today, and as the Institute of Medicine predicts, there will be smokers in the future, perhaps less because there is no safe cigarette, it will continue to do it in the future.

Q. What I meant was that you agree that the rate of lung cancer in men increased through about 1990?

A. Well, I haven't reviewed the individual data. I have seen things for example, Monograph -- that Monograph 13. I have looked at other monographs. I viewed conclusions which are based on very complicated

analysis of epidemiology which just showed some decrease in lung cancer risk, not a major decrease -- I don't want to mislead anybody -- some decrease due to the introduction of the things we have done since the '50's.

Q. Now, I'll ask you about the epidemiology in a second. I want to ask you about something else first.

Philip Morris also took the public position that cigarette smoking was not addictive until at least 1998; is that true?

A. That's correct.

Q. And did you know that in one Philip Morris document dated in 1959, the Philip Morris employee said one of the reasons people smoke is addiction. Did you know that?

A. I have never seen that document.

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Q. Let me show it to you?

MR. LYDON: Do you have a number?

MR. ACOSTA: Yeah, let me see if I can find it here. Excuse me. Can we have the Elmo, I mean, the screen up there?

MR. LYDON: Do you have a number?

MR. ACOSTA: Yeah, 1545. That's the wrong one. I'm sorry. That's not the right exhibit. Just give me one second.

(Thereupon, there was a brief pause in the

proceedings.)

MR. ACOSTA: Okay. It's Exhibit No. 1345. I'm sorry. I've got a copy. I can show it to you, if you would like to see it.

BY MR. ACOSTA:

Q. Do you know who Dr. DePuis is?

A. Yeah.

Q. Or DePuis?

A. If I can see -- I've heard the name. I never met him.

Q. Did you know Dr. DePuis was the Director of Research back in 1959?

A. Could I have a moment or two to review the document?

Q. Oh, sure. It's hard to read. It's not a very good copy.

A. Okay.

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(Thereupon, the witness reviewed exhibit.)

BY MR. ACOSTA:

Q. DePuis, do you recall he was Director of Research for Philip Morris in 1959?

A. I have seen other reports suggesting that, yes.

Q. All right. And on the top of the second page, page two, this follows a statement from page one as to why people smoke. You see the third reason there? It

says addiction.

MR. LYDON: Can we have a clarification? This is a document to him, not from him.

BY MR. ACOSTA:

Q. From Geiger to DePuis. Geiger was another scientist in Philip Morris. Are you aware of that?

A. I'm not. This is from Geiger to DuPuis.

Q. Yes.

A. How do we --

Q. Let me ask you, Doctor, you said you have never seen this document? Are you aware that Philip Morris research, at least their research department, someone there thought that cigarettes were addictive back in 1959, based on your knowledge of Philip Morris?

A. I mean, I have read things in the newspaper, but I had no specific knowledge from my job on that --

Q. Okay.

A. -- that there were those in the research department saying it was addictive.

Q. Okay. Now, you had a couple of little charts that

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you put on up there that showed the reduction in tar and nicotine over the years. Do you remember that?

A. That's correct.

Q. Interestingly, the first four or five years, from 1955 to 1960, the graph actually went up, didn't it?

MR. ACOSTA: Can we have those two charts back up, the tar and nicotine reduction charts, please? I've got a copy here. This might --

BY MR. ACOSTA:

Q. Do you see that green line there?

A. Yes, I see it going from roughly 36 to 38, either a one- or two-year period, one-year period.

Q. That was about the time that filter cigarettes came out; is that right?

A. About the time, correct.

Q. And so that spike up would mean that the Marlboro actually had more tar and nicotine in it when it first came out in the subsequent years then it did when it came on its very first day? In other words, tar and nicotine increased the first years for Marlboro?

A. Well, this chart doesn't, you know, just reflect Marlboro. It's a small change. Measurements made back then really aren't as accurate as they are today and these are the result of sales.

Q. One of the reasons for that was to provide the smoker with a little bit more tar and nicotine than he was getting before; correct?

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A. Well, you know, the filters were introduced into the market because people were -- had seen some of the health, you know, research and consequences, and they

were interested in filters and to reduce tar and nicotine. And this was also guidance that we had from the public health scientist, Dr. Wynder. And if there was a blip there one year from a couple milligrams, I think what's an important thing to note is that after that, it's now had other blips because these are sales-weighted averages and it depends on how sales varied.

Q. Now, the -- those two graphs that you showed that showed that reduction, those are based on the FTC method; correct?

A. That's correct.

Q. And that method is one where a machine takes a puff every 58 seconds, and actually only takes two puffs of a cigarette, and then determines what the tar and nicotine level is; is that true?

A. No, that's not the correct method.

Q. Oh, what -- what was wrong with my description?

A. That it only takes two puffs.

Q. Oh, does it take -- it takes more than two puffs?

A. Well, there is -- there is a method. I'm aware of the method and can answer questions about it.

Q. Okay. But, anyway, the cigarette is stuck on a machine, it takes however many puffs, and determines the tar and nicotine level?

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A. The cigarette is put on the machine lit and it's smoked in a precise manner down to a certain point and the tar and nicotine is measured, that's correct, and those data are reported to the government.

Q. And over the years that tar and nicotine level on average -- those are average for all cigarettes; correct?

A. That's correct, depending on how well they sold in the market.

Q. All cigarettes from every manufacturer made up that chart in declining tar and nicotine levels; correct?

A. Yes.

Q. And you would agree that a human being does not smoke the cigarette in the same way that the smoking machine smokes it; correct?

A. Well, I would agree that a human, a person actually smoking is not going to take a puff every minute precisely of exactly 35 cc volume and stop when the cigarette reached a precise line. There is a lot of variation in the way people smoke. I think there are people that smoke in a way that's similar to the FTC delivery.

Q. You are familiar with the term, smokers' compensation?

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A. Yes, I am.
Q. And smokers' compensation, in a nutshell, is the ability of the smoker to derive the nicotine that he requires; is that true?
A. That's not the definition that I'm aware of.
Q. Smoker compensation means that the smoker can adjust his puff rate, the frequent -- in other words, the frequency of his puffing, the depth of his puffing, the strength of his puffing, and determines how far down to smoke the cigarette; true?
A. Well, smokers' compensation is rather -- a sort of scientific and technical point. You are not -- you are describing some features of it, but haven't really gotten it right.
Q. Pardon?
A. You haven't gotten the right -- the right definition yet.
Q. Well, go ahead and give us your definition.
A. Compensation is a measure -- is what smokers do if they switch brands or switch between a high and low tar cigarette, how they modify their intake or their overall puffing behavior.
Q. And why do they do it when they switch between a high brand and a low brand?
A. Well, I just -- I just identified what

compensation was. I mean, there are studies that say

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that some -- that some smokers do it. There are a lot of studies like that. And the degree of compensation or the way people actually smoke their cigarettes is quite -- is quite varied. Can you just repeat --

Q. Well, you said they do it when they switch from a brand that has higher tar and nicotine to a lower brand, a brand that has less tar and nicotine; right?

A. I said this is what -- this is how it's studied. Compensation is something that is hypothesized people do it when they switch. It turns out some people do it, some people don't. That's how the study is designed. I mean, I was just describing to you what a typical compensation study might look like.

Q. For example, a study on Marlboro and Marlboro Lights would find that people that switch from Marlboro to Marlboro Lights would smoke the Lights in a way that they got just as much tar and nicotine from the Light as they got from the regular Marlboro; correct?

A. Well, you have said an awful lot there. What was the question?

Q. All right. Would you agree that people that smoke a Marlboro Regular and switch to a Marlboro Light, when they switch to the Light they are going to smoke the Light in the way that gives them as much tar and

nicotine as they got from the full-flavored Marlboro?

A. I think it's likely that, you know, some people might, some people are going to get less, and there is a

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lot of variation. So we know that compensation does exist. It exists between brands and tar levels that are different. But I'm not, on the other hand, saying that something that generally is always happening is true for every -- every single smoker.

Q. Are you -- let me show you something that's Plaintiff's Exhibit No. 1474, and ask you if you have seen this exhibit before.

(Thereupon, the witness reviewed exhibit.)

THE WITNESS: Yes, I have seen this exhibit before.

BY MR. ACOSTA:

Q. This is a Philip Morris document; correct?

A. Correct.

Q. And it's dated September 17, 1975?

A. Correct.

Q. And it's from Goodman to Mayer regarding Marlboro/Marlboro Lights Study Delivery Data; correct?

A. The subject is Marlboro/Marlboro Lights Study Delivery Data.

Q. Okay.

MR. ACOSTA: Your Honor, may I put the -- part of

this document on the screen, please?

MR. LYDON: I don't know if it's offered yet.

MR. ACOSTA: Well, I can't in my case, but I will later. The witness has identified it as a Philip Morris document that he has read.

THE COURT: Approach.

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(BENCH CONFERENCE.)

THE COURT: You are going to offer it in your case in rebuttal and it's a document from Philip Morris. Let me see it.

MR. ACOSTA: That he has identified.

THE COURT: Is there some question?

MR. LYDON: I was just trying to verify that myself, if I can just have --

THE COURT: Have you seen the front of it?

MR. LYDON: I have seen the front of it. Your Honor, assuming that he is able to identify that it's the complete copy, fine. You will offer it in your own case. I'd ask that we be able to verify this, in fact, is the complete document that he saw.

MR. ACOSTA: I'm going to show part of it, anyway.

MR. LYDON: Are you intending to offer it all or part of it or what?

MR. ACOSTA: Actually, I'd just offer the first three pages. The data, to me, is not that significant.

If you want me to, I can ask him about it.

MR. LYDON: I'd like to make clear what it is to be reviewed from the document, what he --

MR. ACOSTA: All right. Okay. It's just going be the first three pages, I mean, unless -- that's all I want to introduce.

MR. LYDON: Fine.

(BENCH CONFERENCE TERMINATED.)

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THE COURT: Well, Mr. Acosta, now I'm noticing it's noon. Should we consider additional testimony with this witness or is it worthwhile to try to conclude?

MR. ACOSTA: We need pretty much through lunch time if we stay. I think it might be best to stop.

THE COURT: Okay. Let's take a lunch recess. Please be back approximately at one o'clock. If you need more than that, 1:15.

MR. ACOSTA: That's fine.

THE COURT: 1:15, then.

- - -

C E R T I F I C A T E

I, Yvonne P. Habis, Court Reporter, Notary Public, in and for the Sixth Judicial Circuit, Pinellas County, State of Florida at Large, do hereby certify that the said hearing was taken at the time and place stated herein; and that the said hearing was recorded stenographically by me and then reduced to printed form under my direction, and constitutes a true record of the testimony given at the time of the hearing.

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Dated this 20th day of May, 2001.

Proofed and reprinted August 1, 2002.

Yvonne P. Habis

Court Reporter

Notary Public

IN THE CIRCUIT COURT OF THE
SIXTH JUDICIAL CIRCUIT IN AND FOR
PINELLAS COUNTY, FLORIDA

CASE NO.: 97-4678-CI-11

ROBERT M. TUNE, Plaintiff,	
vs.	VOLUME XVIII
PHILIP MORRIS INCORPORATED, a foreign corporation, Defendant.	

BEFORE: The Honorable ANTHONY RONDOLINO
PLACE: St. Petersburg Judicial Center
545 First Avenue North
St. Petersburg, Florida
DATE: May 20, 2002
TIME: 1:10 p.m. - 3:00 p.m.
REPORTED BY: TONYA H. MAGEE, RPR
Court Reporter and Notary Public
Sixth Judicial Circuit

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JURY TRIAL

ROBERT A. DEMPSTER & ASSOCIATES
COURT REPORTERS
P.O. BOX 35
CLEARWATER, FLORIDA 34618-0035
(727) 443-0992

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A P P E A R A N C E S:

HOWARD M. ACOSTA, ESQUIRE
Law Offices of Howard M. Acosta
300 First Avenue North
St. Petersburg, Florida 33701

Attorney for the Plaintiff.

KENT G. WHITTEMORE, ESQUIRE
BRUCE H. DENSON, ESQUIRE
Whittemore, Denson P.A.
One Beach Drive S.E. Ste. 205
St. Petersburg, Florida 33701

Attorneys for the Plaintiff.

MATTHEW LYDON, ESQUIRE
JOSEPH J. ZAKNOEN, ESQUIRE
Winston & Strawn,
35 West Wacker Drive
Chicago, Illinois 60601

JOHN W. CHRISTOPHER, ESQUIRE
Winston & Strawn
38th Floor, 333 South Grand Avenue
Los Angeles, California 90071

Attorneys for the Defendant.

NANCY J. FAGGIANELLI, ESQUIRE
Carlton, Fields, P.A.
777 South Harbor Island Boulevard
One Harbor Place
Tampa, Florida 33602
Attorney for the Defendant.

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MR. LYDON: There is one matter before the jury comes back in, and that concerns the Plaintiff's Exhibit 1474, which was the subject of inquiry just before we broke. And as I had a greater opportunity to review the documents, I do have a substantial objection for the document in terms of the inquiry of this witness and in terms of the admissibility otherwise.

It appears to concern a study of Marlboro Lights. I thought it was a study of Marlboro and this issue of compensation, well, I don't understand as to how it could have any relevancy to this case because the undisputed relevance is that Mr. Tune was a regular Marlboro smoker and there was never any issue of lights. Beyond that, as you look at the study, the word study ought to be in quotes because they are studying nine smokers, which targeted a representative of any sort of legitimate study. And we are not offering this documents for anything, and it's really irrelevant to the issues in the case.

THE COURT: Mr. Acosta.

MR. ACOSTA: Yes, sir. I think Mr. Lydon is mistaken. It's a study involving Marlborough 85s,

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Mr. Tune smoked Marlboro regulars, which is Marlboro 85.

MR. LYDON: What the study is is the effect of changing Marlboro Lights. There is no issue to Marlboro Lights. He never smoked Marlboro Lights. It's a study of nine smokers. I can't imagine this is an internal thing that somebody did for whatever reason. It's not a legitimate study. Nine smokers wouldn't prove anything.

MR. ACOSTA: This is what they did. It goes to the weight of it. If the witness said, well, there is only nine smokers involved, that's okay, but it's relevant because it says --

THE COURT: How is it relevant to questions

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posed to this witness?
MR. ACOSTA: It goes to this idea of compensation. And Your Honor saw how they reduced tar and nicotine but what happens is smokers compensated. This is a perfect example of it.
THE COURT: Well, regardless if it's a perfect example of it, if this witness has no knowledge of it. Just because he is an employee of the defendant corporation doesn't mean any time you have a document in evidence or a document from Philip Morris you can ask him about the document.

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MR. ACOSTA: Well, I can ask him if he agrees with this document.
THE COURT: Why would it matter whether he agrees with it or not.
MR. ACOSTA: Because the way it matters is he talks about how tar and nicotine levels had been reduced in their attempts to reduce safety in the study back in 1985 shows when smokers smoke the cigarette that has half of the tar and nicotine than another, they smoke it in a way to get the same amount. This is what that is relevant to. This is why I used it. I didn't just pull it out of the hat.
THE COURT: Nobody seems to be on the same track with me in this case in terms of the analysis of the introduction of this kind of evidence. You know, it might be admissible. It might be evidence that could be introduced from somebody who has some knowledge about it, but it just mystifies me how you can ask a witness if he agrees with something.
MR. ACOSTA: Impeachment. This is basically impeachment. He says that he implied to the jury or testified there is been a reduction in tar or nicotine to make cigarettes safer. This shows it makes no difference --

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THE COURT: Maybe it does, but, you know, this is just -- I'm doing the same kind of analysis on your attempts to introduce the evidence as I did on their attempt to introduce the evidence.
MR. ACOSTA: But he said he was familiar with this document.
THE COURT: Wait a minute. Just because somebody is familiar with it doesn't mean they can testify about it. Where is that rule? Where is it? I mean, I hear that a lot. I hear that on expert testimony. The fact that an expert has reviewed a document, completely rejected or not considered it, not used it in coming to their conclusion doesn't make it admissible.
MR. ACOSTA: Well, I understand that, but in this situation this involves the issue that he talked about. This involves the study of smoking compensation, and we talked about it. He answered questions about smoking compensation; that's what this is. Smokers compensated to achieve the dose that is necessary for them personally. This study they did, which Philip Morris did, that he is familiar with represents that fact that smokers switching from a regular Marlboro, like the kind Mr. Tune smoked, to the lights would have gotten

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the same amount of nicotine either way and it's relevant to his testimony he already gave.

THE COURT: He was asked on direct examination about compensation.

MR. LYDON: I didn't, Your Honor.

MR. ACOSTA: But they asked about what the result of this reduction was, and I'm entitled to cross-examine to show what the reduction in tar and nicotine achieved no value, that it's a big fraud, if you want to know the truth. That reduction of the tar and nicotine is a huge fraud on the public in the United States and this demonstrates it.

THE COURT: Okay. Well, perhaps that makes it even more important for the Court to examine the admissibility of it. As I understand it, this fellow is a scientist. He tells us what comes out of the end of the cigarette.

MR. ACOSTA: Right.

THE COURT: I don't know if he has personal knowledge about some human studies. How can he testify about human studies? He didn't put forth to even tell us about it.

MR. ACOSTA: Judge, he testified they take it out and measure it on the F.T.C. method and they imply that the cigarette is safer because they have

1842

taken these things out. Now, they think I'm entitled to cross-examine to show that the cigarette isn't any safer because they took those things out. That is what this was all about.

That's what the purpose of this testimony was, to show they have done whatever they can do to make the cigarette safer, taking out tar and nicotine. And I'm trying to show through this document and others that it did not make any difference, that taking the tar and nicotine out didn't make the cigarette any safer. And that's the while point of it.

THE COURT: So the way to get that proof in, proof of this fact in, is to ask the witness who knows nothing about it whether he agrees or disagrees.

MR. ACOSTA: He said he was familiar with this study and this would -- obviously, if he is familiar with these findings that the light smokers smoke as much as the regular smoker, gets the same dose out of the cigarette as the regular smoker, then it's relevant. And that's what this study found. It contradicts some of his testimony about smoker's compensation. He says, well, you know, maybe some people do it, but not everybody does it.

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THE COURT: That was all on your examination of the witness.

MR. ACOSTA: Yes, I know. And that was all relevant. This just flows from that. It's all relevant to what he testified to on direct about the reduction and the safety. They take safety into consideration. This is one of the things they take into consideration in reducing these things. Why would you reduce them if it had no effect. That's the whole point of this.

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THE COURT: It's exactly the same thing with the sales of the cigarettes. They are over here. Well, why would they even be doing all of this stuff if it wasn't correlated to the sale of the cigarettes. And he has been advised about what sold, when, and how many times. He is not in the marketing department or the human analysis department.

MR. ACOSTA: Well, I understand that. But this particular study goes to the design of the cigarette, and I have more to cover on that. But they designed the cigarette with knowing that this would happen. That's what the whole design is about.

They designed the cigarette so the smoker can

1844

get the same amount, you see. That's why it's relevant, because they designed this cigarette. They put extra holes in it so the machine, when it puffs it, it gets X amount of nicotine. When the smoker puffs it, he gets whatever amount of nicotine requirement he needs irrespective of what that cigarette machine does.

He talked about the cigarette machine and talked about reducing it and talked about that was a design consideration that they used. I'm not going out into peripheral areas of human behavioral studies, or anything like that.

THE COURT: You are trying to prove by this document that people compensated in a particular fashion that's revealed by a study not performed by this witness.

MR. ACOSTA: Which produces the design. I mean, if the design was to cause this to happen, they designed the cigarette so that smokers can do that.

THE COURT: Once again, I'm not concerned about the admissibility of this document because it certainly has relevance to the proceedings and you would be permitted to introduce the document in your rebuttal. But, hey, I'm just totally

1845

mystified as to how we can get witnesses up here and ask them about areas outside of their testimony and introduce other documents through the witness and have them --

MR. ACOSTA: I will ask them a few more predicate questions about the design of the cigarette. I will be happy to do that. But that is why this is relevant, because it goes directly to the design of the cigarette. Absolutely, if you consider in his design parameters the affects, the smokers taking more cigarettes in to compensate, if he is using that in his job, well, yeah you can talk to him about that.

But I think you are just getting opinion testimony from a person. It's kinds of like, well, all right, here we have this item of evidence introduced, purportedly a statement of the defendant. Now anybody whose from the defendant's company, we'll ask them what they think of it, whether they agree with it.

MR. LYDON: Your Honor, this is a document

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pulled out of Philip Morris's file very clearly. But to suggest that it rises to some validity on the face of it, I think is absurd.

THE COURT: Well, you're stuck with it.

1846

MR. LYDON: But that doesn't mean -- how is he supposed -- it's in the files. Because it's in the files doesn't mean it's a valid study or that anyone relied upon it.

THE COURT: We went over and over that. It's an admission in the case. It's coming in.

Now, whether it's offered for the truth of the matter asserted, whether it's accurate, those are all things that you're going to have to deal with.

MR. LYDON: If I went in there and said you did a study of 100 people, this is nine people. How can you say that is a valid study of anybody. Back in 1975 somebody wrote a memo about what she did studying nine smokers. All right. That's not probative. That's prejudicial.

THE COURT: Well, you will be permitted to argue that. You will be able to argue it is given no weight and your client wasted their money, too.

MR. LYDON: Some employee, I don't know who this person is, but it's on Philip Morris stationery, some person did the study. On its face, that couldn't be valid. There is nobody that does a study of nine smokers and says it meant anything.

MR. ACOSTA: I have a rule of completeness

1847

request that says if smokers collected study on the ingredients found under the projected studies.

MR. LYDON: Other studies. That's another point this study doesn't mean anything.

THE COURT: I agree. I think this is an admission. It's admissible. I'm just not agreeing with the plaintiff that the appropriate use of the document is to have this witness publish it and comment upon it. The jury can read. Counsel can make their argument about what's occurred with respect to the facts printed by the evidence.

But to just have any witness from the defendant get up and say, well, do you agree or disagree with this piece of evidence is just argumentative. It's just inappropriate. But as I've said, if you want to lay a predicate that this gentleman uses in his analysis and his opinions given here today, the underlying principles known as smokers' compensation, well, that subject is open sentence. Okay.

MR. ACOSTA: Yes, sir.

THE COURT: Let's bring the jury in.

THE CLERK: Is this in evidence?

THE COURT: It hasn't actually been moved into evidence yet because it's the defense case. Unless

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there is a stipulation that could be introduced at this time?

MR. ACOSTA: I was just going to wait.

THE COURT: You can retake the stand sir. Thank you. Watch your step.

THE BAILIFF: Jury seated in the jury box,

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Your Honor.
THE COURT: Okay. Let's proceed with the cross-examination.
MR. ACOSTA: Yes, Your Honor.

CROSS-EXAMINATION

BY MR. ACOSTA:

Q. Dr. Lipowicz, do you agree that a given cigarette can be made to deliver any lower level of tar in machine measurements, that would be like the F.T.C. measuring machine, by increasing the size or the number of the ventilation holes in the filter?

A. Ventilation gives you a lot of control over the tar when you get down to virtually any level that you want.

Q. And that is one of the ways that Philip Morris has achieved the reduction in tar and nicotine; is that true?

A. Yes. That was on my chart ventilation helps reduce tar and nicotine and also helps reduce things

1849

other than tar and nicotine.

Q. Does Philip Morris choose where to put the ventilation holes in the cigarette?

A. Well, the cigarette design specifies where the holes are, and they are in a specific place because the performance -- the amount of ventilation not only depends on the size and the number of the holes, but also the locations. So if you put them too close to the tobacco rod, in other words, away from the end of the filter, you will need more.

Q. So you put them in a place where the smoker can cover them with their fingers, correct?

A. We put them primarily in a place where they will actually work and ventilate a cigarette. If the vent holes are more toward the middle of the cigarette, there is not enough pressure drop for ventilation to work; as the cigarette burns down, ventilation would change and tar and nicotine would change.

Q. On the other hand, Philip Morris knows when the smoker smokes it in -- let me back up.

When you designed the cigarette and designed the places for those holes, you know the smoker may cover them with his finger?

A. Well, I think the operative word there is may. It's always possible that, you know, some part of the

1850

hole could be covered while smoking.

Q. And while the smoker does that, he achieves a higher tar and nicotine delivery than a smoking machine, correct?

A. Well, actually, just if you -- there's many holes, as I showed you in the diagram on the exhibit how many holes there were. I believe there's a few dozen holes, more or les. It's very hard to cover all of them. You can try. We have tried.

If you cover a few of the holes, it's like having a leak that's got six holes and plugging one of them, it still leaks. I have done a lot of studies where ventilation holes are partially blocked. The Department of Public Health in Massachusetts has specified a test method where you block half of them. And it causes slight increases in the tar and nicotine, tar level, but not major.

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Q. So in fact that's something you take into consideration when designing the cigarette; is that correct?
A. Well, what has been taken into consideration is that for the ventilation to work best, at least technically, it should be as close to the mouth as possible. But as we're well aware, at least from the documents that you saw, blocking of ventilation is

1851

clearly done. So it's a matter of trying to put them far enough away from the mouth that they work but try to put them also far away in the sense of not being able to block them with the mouth and fingers. It's impossible to do from a perfect design and we have done as best we can.
Q. I understand. But what we're getting at is you take into consideration in your design how the smoker smokes a cigarette, true?
A. Well, primarily there is just one simple decision there: Where can we put those ventilation holes. And for almost all of our cigarettes, they are generally right around 12 millimeters, which is about a half an inch. So they're not moved around specifically to say here's a smoker that might cover 14 millimeters.
So they are all designed, how big the holes are how many there are, how many rows of holes.
Q. I understand that. This is my question: Do you take into consideration how the smoker holds and smokes the cigarette in designing the ventilation?
A. Well, the ventilation is largely designed around lowering the tar and nicotine for the Federal Trade Commission test. We understand that when people smoke cigarettes, they will hold the cigarette when they're smoking it and try to put the -- it was

1852

originally taken into consideration account in the general design work where to put those holes. But it's not something I know that every time you design a cigarette, you know exactly where to put the ventilation holes again. You generally put them about a half inch up.
Q. Does that mean you take into consideration how the smoker smokes a cigarette when designing the ventilation?
A. Cigarettes are tested on this Federal Trade Commission test methodology which, you know, was a method that is similar to how some people smoke. It's more a measure of the product of the cigarette than ways you smoke it.
Q. Then, are you suggesting that you don't take into consideration when a smoker smokes a cigarette when you designed the ventilation for the cigarette?
A. Well, I told you that we have taken into consideration in the sense of the general placement of those holes, okay. But it's not something where every time we design a cigarette -- we have hundreds of different cigarettes on the market -- where there's a study done that says exactly where to put the holes. It's a compromise on where to place them to have them effective and not blocked.

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Q. And what you are concerned about the fact that the smoker, if he blocks those holes, will get more tar

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and nicotine than is shown by the FTC machine method?
A. Yes, that was a concern. We also want to make sure the holes are placed in a place where it will actually lower the tar and nicotine.
Q. You talked about epidemiologic studies a while ago, this morning. Do you remember that?
A. I remember answering questions on the topic of epidemiology.
Q. I take it that the epidemiology is something that Philip Morris took into in designing a cigarette; is that true?
A. Well, I don't see how epidemiology directly has been taken into account. The basic design of a low-tar cigarette is to reduce the smoke. That's upon the advice that we have gotten from Dr. Wynder, who was an early pioneer in our industry, the Surgeon General, remove the tar and nicotine or reduce the tar and nicotine and that should lower disease.
Of course, that's shows up in the epidemiology later.
Q. Okay. So you think the epidemiology shows the design changes that Philip Morris made resulted in less disease later; is that right?

1854

A. Well, we reviewed it a number of times and there is some conclusion that there is some reduction in disease, more specificly lung cancer, from the change.
Q. Let me read to you from Monograph 13 of the National Cancer Institute and ask you if you agree with this. "However, it is clear the expected lung cancer risk reduction offered by the reduction in lung cancer rates and epidemiologic studies has not been realized in national lung cancer death rates when all of the epidemiologic evidence is considered in the context of what is currently known about cigarette design and compensation that does not support the conclusion that a reduction in disease risk has occurred in the population of smokers due to design changes that occurred in cigarettes over the last 50 years."
MR. LYDON: Your Honor, I think that's a compound question. I just object to it.
THE COURT: Well, is your objection on the basis that it's a compound question? I thought the question was do you agree with it.
MR. LYDON: But it's a rather long statement, what my point is. It leaves a lot of things that have to be assumed.
MR. ACOSTA: Well, I will be happy to break it in two.

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THE COURT: You need not do that if the witness can answer the question.
Do you believe you can answer the question if you agree or do not agree?
THE WITNESS: Well, I would like to see the document.
MR. ACOSTA: Yes, I would be happy. May I approach, Your Honor?
THE COURT: Okay.
BY MR. ACOSTA:
Q. It's the highlights. In the sentence above the highlighted portion there.
A. The reason I ask for this document is there

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are other observations in this report that I would like to point out in respect to my answer. It might take me a couple of minutes.

THE COURT: Okay. Take your time.

BY MR. ACOSTA:

Q. Doctor, I have a clean copy of it for you that might help you since I have underlined quite a bit there. It would be better if I have that one so I can figure out where you're going.

THE COURT: Have you gotten tired of looking at evidence?

MR. ACOSTA: No, Your Honor.

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THE WITNESS: I'm sorry. These are rather large documents and just there are other opinions within it.

BY MR. ACOSTA:

Q. Well, the question I asked you was on page nine. The question I asked you was on page nine, the third full paragraph.

MR. ACOSTA: I have a copy for defense counsel.

MR. LYDON: Your Honor, if I could approach?

THE COURT: Yes. Come forward, please.

MR. LYDON: Your Honor, my objection is that it's a summary paragraph. It's a document that summarizes a number of different opinions. So the solution for my objection is to agree to disagree to the question that has multiple parts to it. Beyond that, it also includes a number of things by which there would be no evidentiary basis, so I don't think it could be introduced.

MR. ACOSTA: He testified that it is a showing --

THE COURT: That's stands for the evidence beyond his area of expertise.

MR. LYDON: Sure, it does.

MR. ACOSTA: Not Monograph 13, but they

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brought out on direct that the epidemiology demonstrates that the resolution is lower. That was on direct.

MR. LYDON: No, he didn't. He didn't say a word about epidemiology.

MR. ACOSTA: Yes, he sure did.

MR. LYDON: No, he didn't.

MR. ACOSTA: Yes, he did. That's the point I'm asking this question.

THE COURT: Is this guy a toxicologist?

MR. ACOSTA: Well, he went to toxicologist school for two years.

MR. LYDON: Sound like two years. He's a chemical engineer and they do toxicology work.

MR. ACOSTA: This is classic cross-examination. This is all I want for his testimony. I can't imagine that it would --

THE COURT: The scientist designed cigarettes and ask him about it's just open season on any book that's already been published regardless of whether it's been put in evidence and ask what he thinks of it and whether he agrees or disagrees with it.

MR. ACOSTA: It's a learned treatise that has been previously noted.

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MR. LYDON: This is a companion, though, of

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different opinions, differing opinions.

MR. ACOSTA: Yes, sir. This is classic cross-examination of a witness that has testified about safety. He testified about reducing risk of disease. He testified about epidemiology. He did it on direct and this is clearly a simple follow-up task.

THE COURT: It is through by way of asking him if he agrees or disagrees in any epidemiological study that is published in any learned treatise. That's your position?

MR. ACOSTA: I don't think so, but this is a reasonable study. Judge, he has acknowledged reading this article himself.

THE COURT: There is not a case that says you talk about it.

MR. ACOSTA: That is just part of their argument. This is done to impeach his testimony at the risk of diseases into the evidence.

THE COURT: It's being done to introduce in front of the jury evidence which otherwise some epidemiological study that they can't cross-examination then they can't cross-examine anybody. It's not like it's a generally recognized principle in a learned treaties.

1859

MR. ACOSTA: CPS-II cancer prevention study that everybody knew. The cigarette companies were well aware of the studies.

THE COURT: That doesn't mean it's accepted in the field as being uncontrovertible so you can cross-examine somebody on it.

MR. ACOSTA: This bears direct on the cigarette and what they are trying to achieve lowering the rates of --

THE COURT: I'm saying where is the evidence of this? I expect evidence to come in. That's all.

MR. ACOSTA: Well --

THE COURT: Come in and tell us what the evidence is.

MR. ACOSTA: Well, I think that's the way it's done. That's the way you find it causes cancer from a learned treatise. If it's a learned treatise, you are entitled to. I've read Erhardt carefully on this because the other day when I tried to stop them from going back on direct with another portion of the learned treatise, Your Honor was not happy with me doing that.

So I was concerned and I went back and read Erhardt carefully. And they're not entitled to

1860

redirect somebody with another part of the learned treatise. That's the way it is. That's what the statute says. If they were permitted to go back and read from the learned treatise, it would say so.

Your Honor, it speaks for impeachment purpose.

THE COURT: Has the witness had an opportunity to review the document?

THE WITNESS: Yes, I have. For the purpose of

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one question.
THE COURT: Do you feel that you are or not able to answer the question?
THE WITNESS: I feel like I am able to answer the question.
BY MR. ACOSTA:
Q. Do you agree with what I read?
A. Well, I will just quote from the same report, Page 108. "Studies published in epidemiological literature support a difference in lung cancer --
THE COURT: You'll have to slow down. You're reading. Okay.
A. "Studies published in the epidemiological literature support a difference in lung cancer and possible heart disease risk."
On Page 81, they talk about -- Table 4.1 shows

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the studies that examine lung cancer risk with low yield products. While it's feasible we have not found a relationship, several of the relationships identified were not statistically significant.
A clear impression taken from the studies as that whole is that there is lower risk of lung cancer among a population of smokers who use lower yield products. So, therefore, on the face, you have the same study providing somewhat different conclusions on lung cancer.
I relied on other reports that I've read surgeon general FTC Monograph Number 7 that have concluded --
Q. Let's go to page ten under conclusions paragraph three. It says "Widespread adoption of lower yield cigarettes in United States is not prevented to sustain increase in lung cancer among older smokers."
Do you agree with that?
A. I'm really not that well versed in epidemiology. I read these kinds of reviews. I haven't read this document to see any contrary information, for example, about that. So I'm not in a position to agree or disagree, but clearly, it's written here.
Q. All right. Do you agree that the blends of tobacco used in cigarettes combined with the use of

1862

fillers, additives, and reconstituted sheet tobacco and tobacco pollen in the cigarette can lead to differences in nicotine contents among brands?
A. Can you find anything that contrasts that statement?
Q. Well, I'm sorry to say that I can't tell you -- I can't speak as if I'm the National Cancer Institute, but I can just ask you if nicotine content varies brand to brand?
A. Well, the nicotine content or delivery that I showed earlier went down because of the modification that we made to cigarettes, such as ventilation, and so on. And there may be some small differences between that actual nicotine content of the tobacco. Most of the contents is 1.8 percent. Some might be 1.6 or 1.7. Some might be two percent.
It's a natural products and varies with blends in a certain way. There is not as much that varies that nicotine tobacco that it shows you on the graph.
Q. You agree that nicotine is designed to be,

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quote, elastic, unquote.
A. Define elastic for me.
Q. Elastic means that it's designed to allow the smoker to obtain the required nicotine level that he seeks?

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A. No. I disagree with that.
Q. Look at Page 30, I'm going to read to you and ask you if you agree with this from the National Cancer Institute 2001. "Elastic cigarette designs. The rules or constraints of the F.T.C. measurement regime can be used obstacles to a design cigarettes that deliver lower yields during the course of the standardized smoking machine test while enabling smokers to achieve yields higher than would be predicted by smoke machines. A design gives lower value to smoking machines but can potentially give higher value to smokers is termed elastic."
Do you agree with that?
A. Well, it sounds like they have defined elastic. The question you asked earlier is whether they were designed to be elastic. And I think it's important that we are mandated by law to use the F.T.C. tests.
Q. And do you agree that cigarette -- do you agree that Philip Morris designed the cigarette to provide the smoker with more tar and nicotine than is shown in that F.T.C. test?
A. Cigarettes are designed to differ from each other. So clearly a cigarette that has expanded tobacco is different than a cigarette that doesn't. Smoking it on the F.T.C. machine is just one way of showing that,

1864

and it's very common to use machine standardized testing to compare differences on the products.
Q. Do you agree that the reduction in tar and nicotine levels over the years has not necessarily resulted in reductions in tar and nicotine for the smokers?
A. Well, I think if a smoker has, you know, smoked a cigarette the same way and changed to a lower tar cigarette, they would get less. I know from the data that how people smoke is a variable that came out when the F.T.C., Federal Trade Commission, first announced the way that a cigarette is being tested. And they mentioned that's not what smokers actually get and that's highly variable.
So I think there is data that show that there are people that smoke lower tar cigarettes who would be getting somewhat less -- lower tar and nicotine than people who don't.
Q. Do you agree that smokers regulate the intake of nicotine to attain the amount of nicotine they need to sustain their addiction?
A. I've heard that theory and I read that as a theory that, you know, is active. And I have seen data that supports that theory. At this time I can't tell you precisely whether I do.

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Q. You don't agree with Page 60 of the N.C.I, National Cancer Institute, on that, their conclusion?
A. Well, you're reading outside of the area you were talking about. So let's see, Chapter Three. I mean, these are all chapters -- this one was written --

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it's called "Compensatory smoking of lower yield cigarettes, by Neal Benowitz. In fact, it was his theory that suggests it's possible. He's written this chapter seven. So I won't -- I mean, I'm in an awkward position to say exactly what this stands for, to say whether this was an conclusion or not. But the point is it was written by a scientist, and it's not necessarily a conclusion overall.

Q. Well, let me ask you this: Is there a reason to expect that smokers of -- let me read this verbatim and then I will ask you a question.

MR. LYDON: Your Honor, objection. I think this is the same thing that I just observed before. Now it's clearer when we started getting into the individual chapters.

THE COURT: I'll permit it. Go ahead.

BY MR. ACOSTA:

Q. Doctor, it says "Considering the overall exposure data for individuals selecting their own brand, there is little reason to expect that smokers of low

1866

yield cigarettes will have a lower risk of disease than smokers who would smoke higher yield cigarettes."

Is that true?

A. What page are you on?

Q. Page 60.

A. Well, it's the same answer. This is Neal Benowitz' chapter. He's an expert in pharmacology admittedly more so than epidemiology. You know, he is in a position to talk about that. I think it is very important, as I quoted from here, there was evidence, epidemiological evidence that lung cancer went down as a result of lower tar cigarettes.

So even if there are other things in here that say something else or something different or something about the disease, the fact is it's in the same book and it seems authoritative to me. But I rely on the fact that I have seen it in other places.

Q. Would you agree that lung cancer is increasing among women?

A. I don't know the specific epidemiological data. I know lung cancer is a serious health problem in the United States and I know that many men and women unfortunately have the disease.

Q. How about Page 146 under conclusion paragraph six --

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MR. LYDON: Your Honor, I object. I think we're moving far afield from his expertise when we talked about epidemiology.

MR. ACOSTA: I'm asking him directly with reference to the way you design cigarettes.

THE COURT: He testified he didn't know with respect to your question about whether there was an increase in cancer among females.

MR. ACOSTA: I understand that, Judge. So now I'm going ask a different question which is not about cancer in females, but --

BY MR. ACOSTA:

Q. Do you agree there is no convincing evidence that changes in cigarette design between 1950 and the mid 1980s have resulted in an important decrease in the disease burden caused by cigarettes either as smokers as

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a group or for the whole population?
A. Well, I have to disagree in the sense that I already read to you that there was evidence that lung cancer was reduced, and I certainly regard lung cancer as a very serious disease.
Q. Do you -- let's talk about something else for a second. Reconstituted tobacco. You mentioned something called De-Nic. Do you remember that, De-Nic?
A. Yes, I remember.

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Q. Now, reconstituted tobacco is a method of removing nicotine that involves a method which can result in the removal of nicotine. Is that true?
A. Well, there is a process for that reconstituted tobacco. And in that process, some nicotine is removed.
Q. All right. And Philip Morris has known for many years about how to remove nicotine from tobacco; is that true?
A. Well, I think you really oversimplified it if you put it into a simple solution to remove it. That's not something that is a secret or actually useful. For example, that's why De-Nic, with the special technology, you removed the nicotine from tobacco the special way without changing what would still be tobacco --
Q. I asked you when, Doctor. Isn't it true that back in the late 1940s, early 1950s, that the technology existed for Philip Morris to remove the nicotine from the tobacco if it wanted to?
A. Well, you know, I guess my answer is that there is a specific process for reconstituted tobacco that we used in the '70s.
Just removing nicotine from tobacco is a very simple process of just getting it wet and soaking it, letting the tobacco dry. That doesn't mean it's

1869

reusable tobacco. So I'm sure people knew how to do that a long time ago. It's a soluble material. So what did you mean?
Q. I meant were they able to do it back in the late 1940s, early 1950s? Yes or no?
A. Well, not necessarily the way that they made tobacco that is smoked.
Q. Do you know when they first came out with the reconstituted tobacco sheets?
A. Well, the process for that when we started using it was probably in the late '50s.
Q. Late '50s. Let's me read to you from page 75 of the National Cancer Institute's Monograph 13. "In the early 1940s, the technology for making reconstituted tobacco, RT, was developed."
Do you agree with that or disagree?
A. I have seen historical documents with similar dates, but I don't have any specific information --
Q. I didn't mean to interrupt you, if you weren't finished. Had you finished?
A. Yes.
Q. Would you agree that laboratory studies have shown that cigarettes made entirely of RT, that's reconstituted tobacco, deliver a smoke with significantly reduced levels of tar, nicotine, other

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phenols, and carcinogenic PAHs?

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A. Yes, I have seen that. Dr. Hoffman with the American Health Foundation has collected data like that.
Q. And Philip Morris has never made a cigarette made entirely of reconstituted tobacco, has it?
A. We have never made one clearly for sale because, I mean, it's a cigarette made of reconstituted tobacco which means it's not the tobacco that people expect. It's tobacco all ground up and reformed into a leaf. And we can use it in maybe ten, 15, 20 percent of the tobacco. But I think the smoker expects getting fresh tobacco, not something that is all chopped up. And from what I understand, the taste is not as good.
Q. Now, let's talk about the ingredients for a second.
You mentioned there were like 590 something ingredients that can be put in cigarettes, flavorings, casings, humectants, stuff like that?
A. There's two numbers, and the one that Philip Morris today uses, 117 ingredients. And there was a number of 599 the entire industry used, that's all different companies, back in 1985.
Q. All right. And then you talked about how these 500 something ingredients, I guess including the 117, were tested to determine whether or not there's

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anything wrong with them, right?
A. I'm not sure if all of those ingredients were tested. What happens is that if they've been tested by us, because we have so many ingredients, many of the ingredients are used by other places. So what our studies were, there were not big studies on ingredients for review.
Q. So some had and some hadn't or haven't been studied in terms of their safety. Is that your testimony?
A. There have been studies -- there is no definitive studies for safety, safety of ingredients, as it is for, you know, the cigarettes. What is important for safety is that adding an ingredient doesn't make the cigarettes any more harmful. And right now Philip Morris is going over each ingredient that we use testing it in a cigarette, actually burning the cigarette and evaluating the ingredients one by one through a very rigorous safety assessment.
The testing that we've done before an ingredient is heated up and measured or to measure a combination of ingredients together, and those tests have been done in the laboratory.
Q. Did you mention in your direct testimony that the industry has hired some group to look at the

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additives and comment on their safety?
A. Yes.
Q. All right. Did you -- is it true that when they did that, they did not burn these products to see what they produced when they were burned?
A. Well, I think it's important to know that this study was done by six well-respected toxicologists. And what they did was review data when they did conduct studies, reviewed all of the toxicological data, which includes public literature and what was in the files and the tests of all of the different companies.
I don't know exactly what all they looked at,

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like, 599 ingredients. I know the ingredients are used in many countries. It's a lot of data. I'm sure many of those ingredients have been tested in cigarettes and perhaps some of them have not been tested in actually the way it burns in cigarettes.

Q. Well, when they did that study they didn't consider the fate and reactivity of each agent in the combustion process, did they?

A. They considered the actual use and they fully understood it was being used in the cigarette and going to be burned and transferred to the smoker. So to the extent they were available and the scientific information was available, they used it.

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Q. All right. Let me ask you if you agree. This is Page 178. It says, "In 1993 and 1994, the Tobacco Industry convened an expert panel of toxicologists to screen agents that were in use or considered for use as tobacco additives. The panel established a list of 599 agents that were generally regarded as safe. Whereby the term safe applied to each of the additives as such without consideration of the fate and reactivity during and after combustion." Do you agree with that?

A. Well, I want to clarify safe. I have seen in our documents that we understand fully, and I'm sure that this Committee understood, and I have seen it, that that alone is not enough to make is it safe for a cigarette. So I think what this is pointing out is that the F.D.A. GRAS exclusively; does not cover cigarette ingredients so that by itself, it can't be used to justify the use in cigarettes.

Nevertheless, there's about 98 percent of our ingredients that are generally recognized as safe. And that is something to consider in the use in the cigarette, because if it was not recognized as safe --

Q. What is nicotine malic salt?

A. That would be the reaction between nicotine and malic acid.

Q. And that creates a nicotine salt?

1874

A. Yes.

Q. And Philip Morris adds nicotine salt to cigarettes?

A. It is not -- nicotine is inherent in the tobacco. It's not an ingredient that we add.

Q. My question is nicotine malic salt, is that something that Philip Morris ads?

A. I am not aware that we add anything like that to our products.

Q. Do you know if it was something that was added a long time ago?

A. No, I don't.

Q. Do you know whether Philip Morris ever studied the adding of nicotine to its cigarettes?

A. I know that there have been studies with nicotine salts in the laboratory. And the reason is that nicotine actually in tobacco exists as a salt. Maybe not nicotine maleate, but maybe nicotine acetate, for example, that exists in tobacco.

So it's essentially every time you light a cigarette, you're burning a nicotine salt.

Q. Do you agree that Philip Morris has added ammonium carbonate to cigarettes back in the 1960s?

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A. I know that we have added ammonium compounds. I'm not sure about that one, but we have added ammonium

1875

salts.

Q. Are you aware that nicotine delivery varies with the filler pH? The higher the pH, the higher the nicotine delivery, vice versa?

A. I've heard that. I mean, I've heard that theory and it's, you know, there is an extensive range of pH. But that's not how we design our cigarettes. The nicotine is actually -- just by doing the modifications that I told, you the nicotine is removed. And so basically low tar cigarettes would have less nicotine and less tar.

Q. Well, let me show you what's been previously marked into evidence as Plaintiff's Exhibit 1381, and I have it on the screen four. Let's go to the conclusion. "Nicotine delivery can be controlled via filler or smoke pH adjustment, 2 CA, which was defined up above as ammonium -- excuse me, CA selectively.

I don't know what -- do you know what CA of selectivity means?

A. Well CA stands for cellulose acetate, which is what we a make our filters out of.

Q. Okay. So cellulose acetate nicotine additions increases with nicotine availability rather than smoke pH. Do you agree with these conclusions?

A. Well, first all I would like to point out

1876

that, you know, a conclusion that someone might make may be only pertinent to a general study. I have data, this data supports the conclusion.

I mean, I would like to see if I can read the body of the document, to look and examine what has been done before I agree or disagree.

Q. Well, I believe this is just a one-page document.

A. I saw a copy, but I can't read it. Maybe you have a paper copy.

Q. Okay. Let me see if I can find one for you. Actually, it's two pages. More than two page -- a-number-of-pages study.

MR. ACOSTA: May I approach, Your Honor?

THE COURT: Yes.

THE WITNESS: This copy is so poor, I can't read it either here or on the screen. So I really cannot make a valid -- you know, you're asking me something that I can't even read what's on the rest of the document.

I will say in general regarding what was written that while it might be possible to do some of these things in the laboratory, you go to the laboratory and you have, you know, a lot of salts, something you do with a cigarette and you see a

1877

salt and make a conclusion like that, what's really important is that very small amount of ingredients are added to cigarettes that the effects are minimal.

BY MR. ACOSTA:

Q. Let me ask you about another exhibit once I can find it. It's Plaintiff's Exhibit 1291. This is a Philip Morris document dated September 22, 1966. I want

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to ask you about getting a copy.
A. Can you show me who the author of the document was.
Q. Minutes of Dr. Luchsinger's visit on September 20, 1966?
A. Right. And the author.
Q. I don't know if we know who the author was.
A. Is this a Philip Morris document?
Q. Yeah. You can see the Philip Morris numbers on that. You recognize that number down the side?
MR. LYDON: Judge, that doesn't mean it's a Philip Morris document.
MR. ACOSTA: I think it was previously admitted on that basis.
BY MR. ACOSTA:
Q. What my question is, Doctor, on the paragraph on the last page it says, "Nicotine study. Do people

1878

differ in nicotine absorption? Answer to this is of importance to evaluate the question as we influence our cigarettes to alter nicotine absorption."
My question is: Did Philip Morris alter nicotine absorption to your knowledge?
A. I don't believe that our cigarettes has a specific effect on nicotine absorption. However, if you use cigarettes, one delivers 1.2 milligrams of nicotine and one delivers half of that, it would stand to reason that the one that delivers more offers more opportunity for nicotine absorption. But it's very clear we advertise our products as some delivering more nicotine than others.
Q. Do you agree that ammonia controls pH or is used to control the pH? Let me restate it.
Would you agree that ammonia can be added to cigarettes to control the pH?
A. Ammonia is -- I'll disagree with that.
Q. Do you agree that there is a -- that nicotine is considered by cigarette designers as an extractable ingredient, extractable by the smoker?
A. The cigarette designers, the people who actually design decide how expanded tobaccos to use, how much ventilation to use, what kind of filter to use. The design of cigarette determines a certain level of

1879

tar and nicotine in the machine test. It's not designed for that kind of nicotine absorption.
Q. You say they're only designing to meet the machine's needs?
A. No, it's not the needs of the machine. It's actually tests. Machine testing is precise. Nevertheless -- cigarettes vary from cigarette to cigarette, pack to pack. And even with machine testing, it's sometimes difficult to get accurate measurements of cigarette delivery.
Q. Do you agree that Philip Morris in terms of -- well, first of all, do you agree that nicotine is a reinforcing mechanism?
A. All I can say is I have heard theories like that. I've heard theories of nicotine, but I'm not in a position to agree or disagree.
Q. Are you aware that Philip Morris considered the reinforcing aspect of nicotine in upgrading its products?

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MR. LYDON: Objection; beyond the scope.
BY MR. ACOSTA:
Q. In terms of the design of the products?
THE COURT: Overruled.
THE WITNESS: No, I'm not aware of that.
BY MR. ACOSTA:

1880

Q. Let me show you what's in evidence as Plaintiff's Exhibit 1410. This is a letter from Dunn to Wakeham, dated February 19, 1969.
Do you know who Dunn is?
A. I mean, I've never met him. I've heard about him. I have read about him in the newspaper. I have seen his name on a few documents.
Q. Was he an executive at Philip Morris or a scientist?
A. I think he was -- I don't know exactly what he was. He was in R and D.
Q. He was in R and D. How about Dr. Wakeham?
A. Dr. Wakeham, at that time, I'm not sure if he wasn't the head of R and D.
Q. Vice president, and then at one time he was head of the research and development department?
A. That's correct.
Q. Do you think that was back in this time back in the '60s?
A. I guess so.
Q. And is cigarette smoke a drug?
A. I don't believe that it is.
Q. Then you disagree with that third paragraph where it says. "Do we really want to tout cigarette smoke as a drug? It is, of course."

1881

A. I would like to point out, just the last paragraph, there are F.D.A. implications. And just to point out today they are no longer regulated by the F.D.A. Whether nicotine is a drug or not isn't really important as far as how smoking is regulated.
Q. You say today you do want to be regulated by the F.D.A.?
A. That's correct.
Q. And is that so that you can sell these other products that are simply nicotine devices that don't burn tobacco?
A. What's important for us is to be regulated by the F.D.A. so that as we make safer products, we can have claims evaluated in some way that we have someone to communicate to and consult with. And we would like to be able, to hope that, you know, F.D.A. regulations would set the stage for us to do that.
Q. Well, a few years ago Philip Morris did not want to be regulated by the F.D.A., correct?
A. FDA was temporarily given -- to regulate Philip Morris as a medical device, and a medical device is something that you're suppose to have to improve your health, I don't think it makes sense to take something the government -- and we all agree at the company that smoking causes cancer, a serious disease -- and regulate

1882

it as a medical device. We want it regulated as a tobacco company that makes cigarettes.
Q. So today, you're anticipating that whatever regulation the F.D.A. would provide would be different

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than what was contemplated a couple years ago?
A. Yes. I didn't think we ever saw regulation, because it doesn't make a whole lot of sense to regulate as a medical devise. We want to be regulated as a cigarette company that makes cigarettes.
Q. Okay. Well, in any event, at the end of this document -- perhaps this is the key phrase, "The reinforcing mechanism of cigarette smoking, if we understand it, we are potentially more able to upgrade our product."
So the question is: Do you agree that Philip Morris attempted to design the products with nicotine reinforcement in mind?
A. Well, that's the first time that I have seen that particular statement. You know, I only have heard through peripheral, through eyesight -- it says "potentially more able to upgrade our product." We don't talk about, hey, we are going to upgrade our product.
Q. You agree that nicotine is a reinforcing agent for smoking, don't you?

1883

A. Well, we already agree with a larger question that smoking is addictive, and it's breaking it up to all of these different parts like reinforcing. That's not important to the company's position that smoking is addictive. I don't know exactly what a reinforcer is, so I don't want to make a comment on that.
Q. Well, the opposite of a reinforcer would be something that would stop the addiction, wouldn't it?
MR. LYDON: I object to his testimony. I mean, given answer we got to the last question how this one follows.
THE COURT: It's difficult to see when he testifies he doesn't know what it is how can he testify to what it isn't.
BY MR. ACOSTA:
Q. Well, let me ask you this, Doctor: Philip Morris studied chemicals regarding the effects -- well, strike that.
Do you agree that Philip Morris didn't want a nicotine antagonist to be included in the cigarette design?
A. I mean, there's a lot in that statement. And I'm really not an expert in reinforcers. I'm not sure exactly what an AT antagonist is.
Q. Do you know that an antagonist would be a

1884

chemical that would stop an addiction?
MR. LYDON: Objection.
MR. ACOSTA: I'm just asking if he knows.
THE COURT: Ask him if he knows.
THE WITNESS: No, I don't know that.
BY MR. ACOSTA:
Q. Okay. Let me show you what's in evidence as Plaintiff's Exhibit 1545. This is from 1990. It's from Gullotta to Ellis. Do you know who Gullotta and Ellis are?
A. Yes, I do.
Q. Do they work in your department?
A. They work in Research and Development, yes.
Q. And do you recall they were working on a tobacco blend which we advocated, Jolt, as being used in

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Project Bold. Did you ever hear of a tobacco blend called Jolt at Philip Morris?
A. Yes, I did.
Q. Then it says: Jolt referenced nicotine, didn't it?
A. Jolt is a name of a project that, you know, it's a name of the prototype, I guess.
Q. And it says, "We have shown there are optimal cigarette nicotine deliveries for producing the most favorable physiological and behavioral responses."

1885

Do you take into account nicotine deliveries in the design of your cigarettes as they suggest here?
A. They also indicated the results in cigarettes are subjectively equal. I think what that shows is that lower tar cigarettes do taste different than higher tar cigarettes. I have seen that myself when we send cigarettes out to a panel. They found they are less strong and we found low nicotine cigarettes are perhaps less liked.
Q. Low tar you're speaking of the quantity of nicotine, aren't you?
A. Well, the low tar cigarette is a -- low tar delivers a lower amount of tar and lower amount of nicotine, lesser quantity of nicotine.
Q. This is not referring to quantity. It is saying forms of nicotine. Do you see the distinction? "Our laboratory has demonstrated that all forms of nicotine are not behaviorally or physiologically equal."
A. Yes, I see that. I don't know exactly what it means. There are -- there are two forms of nicotine; one is left rotating and one is a right rotating form, and they have different effects. But it's not practically important because all natural nicotine in tobacco is one of those forms. So you have to go to a special place to get the other kind. We only use what's

1886

found naturally in tobacco.
Q. You would agree that formic acid is in cigarettes smoke, right?
A. That's correct.
Q. That is one of the ingredients that Philip Morris ads to cigarettes?
A. Well, I think it's very important to point out that most of what is formic acid is not derived from the ingredients and is not derived from the tobacco, but the burning of the tobacco. For example, there is cellulose in tobacco. When it burns, it -- things like formic acid -- formic acid is very similar to acetate acid, but we don't have an understanding --
Q. I can't hear you.
A. I understand we don't add it directly to our product.
Q. Are you aware that Philip Morris has studied increased nicotine delivery with added formic acid?
A. You know, I'm not aware.
Q. And can I show you what's been marked as Plaintiff's Exhibit 1364 and see if you have ever seen this?
A. That's fine.
Q. Are you familiar with that document?
A. Just give me a moment to take a look at it.

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Sorry for the delay.
Q. Well, the question is simply: Are you familiar with that document?
A. Well, I have never seen it.
Q. You have never seen it. Okay. That's what I really wanted to know. You have never seen it. I won't ask you questions about it if you have never seen it.
Doctor, you mentioned this new cigarette, the Accord, as some sort of state-of-the-art cigarette, correct?
A. I hate to use those exact terms, but it's a very advanced cigarette far beyond today's cigarette.
Q. You are familiar with other companies that have designed similar cigarettes from years past; is that correct?
A. I think there's been only one cigarette that is remotely similar to the Accord.
Q. Well, you're not suggesting, though, that that's the only technology that might offer smokers a safer smoking device, are you?
A. Well, we would like to point out that all cigarettes are not considered safe. They all have the same warnings. The Accord still comes out with the same warning. And that's how it should be until we have all of the things in place and better testing to prove it's

1888

going to be safe.
Q. You are aware that Reynolds came out with a cigarette in the early or mid '80s called Premiere?
A. That's correct.
Q. Are you aware in the '70s Liggett & Meyers came out with a cigarette and contained palladium and worked like a CAD catalytic converter, are you aware of that?
A. I'm not sure that they recently actually came out with it. It was developed, but it's not coming out in '97.
MR. ACOSTA: I don't have any further questions. Thank you.
THE COURT: Any redirect?
MR. LYDON: I have no further questions.
THE COURT: Okay. You may stand down, sir. Counsel, approach the bench.
MR. LYDON: My witness will not be here until 9:00. He is in surgery.
THE COURT: Do you have any additional witnesses tomorrow?
MR. ACOSTA: I don't know. I may have some additional ones.
THE COURT: Okay. So I can tell the jury we will conclude our presentation of evidence and

1889

testimony tomorrow.
MR. ACOSTA: Yes.
THE COURT: All right. Ladies and gentlemen of the jury, I can tell you that once again counsel and the Court have been working together in your absence and the case is moving along to such an extent that, number one, you are going to be able to go home today.
Number two, we expect one more witness in the case, and there may be some additional evidence offered, but we will be concluding the presentation

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of evidence and testimony tomorrow. And I expect that we will go into the closing arguments on Wednesday.

So as I said earlier, we are moving forward quickly this week, so you are excused today and we will see you tomorrow morning for the presentation of the last witness and evidence at nine o'clock.

THE BAILIFF: Jury out of hearing of the court, Your Honor.

THE COURT: All right. Counsel, what's next?

MR. LYDON: We have the jury instructions.

MR. ACOSTA: Could we have maybe a ten minute break to get everything together?

THE COURT: Sure, that would be fine.

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REPORTER'S HEARING CERTIFICATE

STATE OF FLORIDA)
COUNTY OF PINELLAS)

I, TONYA HORNSBY-MAGEE, Registered Professional Reporter, certify that I was authorized to and did stenographically report the trial of the foregoing proceedings; and that the transcript is a true and complete record of my stenographic notes.

I FURTHER CERTIFY that I am not a relative, employee, attorney, or counsel of any of the parties, nor relative or employee of such attorney or counsel, nor financially interested in the outcome of the foregoing action.

Dated this 20th day of May, 2002, at Clearwater, Pinellas County, Florida.

_____
TONYA HORNSBY-MAGEE, RPR

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